DEFENSE SPECIAL WEAPONS AGENCY

Digital Data Delivery Standards

June 1998

Standards for Digital Delivery of Reports and other Scientific and Technical Information

DRAFT
Version 0.8
June 1, 1998

Defense Special Weapons Agency
6801 Telegraph Road
Alexandria VA 22310-3398

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Preface

This standard, "*DSWA Digital Data Delivery Standards*," has been developed for the contractor personnel involved in the creation, development, and delivery of information resulting from the Defense Special Weapons Agency's (DSWA) scientific and technical research programs. It will also be used by those personnel at DSWA involved in processing such information. It establishes the standards and processes to be used for digital delivery of all Scientific and Technical Information (STI) Products, which includes documents, numeric data, videos, software, engineering drawings and many other information products.

Reports are a key component of the DSWA scientific and technical research and development (R&D) program. The key reference for their preparation is ANSI/NISO Z39.18 -1995. This standard has been formatted to provide an example of one interpretation of that guidance. Many others are possible and this should not be construed as the only way to go. Because this is a standard, it is considered an administrative document rather than a DSWA Technical Report and therefore does not completely follow the format prescribed. It generally follows the organization and format for Technical Reports and Project Officer Reports. However, as an administrative document, it does not require the use of an SF 298 nor a distribution statement. It also does not contain a "Conclusions and Recommendations" Section nor does it contain a Distribution List. In addition, its summary is more limited than would be expected of a technical report and is therefore treated as front matter rather than part of the body of a report. For illustrative purposes, figures and tables have been created in more than one format whereas a technical report would be expected to adopt a common format throughout.

This standard is only available in electronic form. Those individuals desiring a hard copy will need to print it themselves. It uses the following typographic conventions

> Text formatted like this, DSWA Home Page, indicates a an active Uniform Resource Locator (URL) link in the electronic form of the document. You can click on it in the PDF document to open your default browser to that site.
>
> Text formatted like this, see "Appendix A Glossary", indicates an active internal link. You can click on it in the PDF document to view the relevant section in the document. Since it is only a change in text color, it is not visible in the hard copy
>
> **Note:** *This publication is unclassified. Any classification markings, warning notices, or distribution limitations applied herein are for illustrative purposes only. Questions should be addressed to the DSWA editorial staff."*

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Summary

This book establishes the standards and processes for digital delivery of all Scientific and Technical Information (STI) Products to the Defense Special Weapons Agency (DSWA). It addresses digital delivery of documents, numeric data, videos, software, engineering drawings and many other information products.

Section 1 discuses the scope of the standard. Section 2 addresses preparation and delivery of the information to DSWA, including media labeling requirements. The content and format of documents, numeric data, videos, engineering drawings, software and other information products are addressed in Section 3. Section 4 discusses the digital format in which the information is to be supplied to DSWA. Section 5 discusses classification matters and marking of warnings and notices and distribution statements. The appendices provide supplemental information as well as example pages to assist users.

Each section has a parallel structure. The following table provides hypertext links to the pertinent sections according to data type. (Users are cautioned that while this is supplied as an aid, these links are far from being exhaustive and the Table of Contents and the Index should also be consulted.)

Table S-1. Data types and related subsections

Data Type	Format and Content Standards	Digital Standards	Classification—Determination And Marking
Documents	3.2 Documents	4.2 Documents	5.4 Marking Classified Documents and Other Material
Photographs	3.3 Photographs	4.3 Photographs	5.13.3 Photographs, Negatives, and Unprocessed Film 5.13.4 Slides and Transparencies
Engineering Drawings and Diagrams	3.5 Software	4.4 Engineering Drawings and Diagrams	5.13.5 Blueprints, Schematics, Maps and Charts
Software	3.5 Software	4.5 Software	5.13.1 Removable AIS Storage Media
Numeric	3.6 Numeric Data	4.6 Numeric Data	5.12 Marking Special Types of Documents
Tables	3.7 Tables	4.7 Tables	5.12 Marking Special Types of Documents
Videos and Movies	3.8 Videos and Digitized Motion Pictures	4.8 Videos and Digitized Motion Pictures	5.13.6 Motion Picture Films and Videotapes

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Table S-1. Data types and related subsections

Data Type	Format and Content Standards	Digital Standards	Classification—Determination And Marking
Time Dependent. Computer Generated Graphics	3.9 Time Dependent Computer Generated Graphics	4.9 Time Dependent Computer Generated Graphics	5.13.6 Motion Picture Films and Videotapes
Audio	3.10 Audio	4.10 Audio	5.13.7 Sound Recordings
Metadata	See DARE Data Submission Manual	4.11 Metadata	5.12.1 Documents with Component Parts

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Section 1: Introduction

1.1 OBJECTIVE

This standard's main purpose is to provide guidance for digital data delivery. It discusses the content and technical standards for DSWA STI products and provides guidance for their preparation and delivery in digital format. This standard discusses design standards for documents that will be viewed electronically.

> **Note:** *All references to office symbols, addresses and phone numbers are subject to change as a result of the pending formation of the Defense Threat Reduction Agency, and consequent internal changes. This section will be modified to reflect such changes as soon as possible after they are known.*

1.2 SCOPE

This document provides advice and guidance for the preparation and digital delivery of all scientific and technical information products produced by and for DSWA. While primarily intended for CDRL items, it is recommended for and provides useful guidance for the delivery of interim products. It applies to:

- Technical Reports and Project Officer Reports, replacing *DNA Standards for Report Preparation*, dated May 1992
- other documents, such as briefings, technical papers and other technical documents
- computer software, including code, related data files, documentation, and all other accompanying material.
- numeric data resulting from tests and experiments or used in or resulting from theoretical calculations and simulations.
- tables of information from databases and spreadsheets
- engineering drawings and diagrams developed in support of tests and experiments
- photographs and other still images, videos and movies documenting the conduct or results of tests and experiments
- time dependent computer generated graphics (animations) resulting from computer simulations.

The requirements for digital data delivery are part of individual contracts. While this standard addresses many data types, only those types called for by the CDRL need to be delivered. This standard provides interpretive guidance but in case of a conflict, the contract language applies. Questions should be addressed to the COTR.

The latest electronic version of this document is available at URL: http://www.dswa.mil/dswaproc/ddd/dddhbk.htm

1.3 KEY DEFINITIONS

The following words or phrases are used throughout and understanding their meaning is key to understanding this standard. Definitions of these and other terms can be found in Appendix A Glossary.

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- Contracting Officer's Technical Representative (COTR)
- Computer File
- DARE
- Document
- Metadata
- Native File Format
- Portable Document Format (PDF)
- Postscript File
- Table

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Section 2: Submission Instructions

2.1 GENERAL REQUIREMENTS

2.1.1 Data Delivery Media

All information products covered by this standard (see 1.2 Scope), should be delivered in accordance with CDRL requirements in digital format on a medium appropriate for the amount of data. CD ROM, 1.4 MB diskettes (Mac and PC format), and 100 MB iomega® ZIP™ disks are acceptable. (See "2.1.6 File Naming Conventions" for file naming requirements.) If this presents a problem, or another medium is considered to be more appropriate, the COTR should be contacted beforehand to ensure that the DSWA is capable of handling the medium proposed.

2.1.2 Internet Delivery

Delivery via the internet, including use of electronic mail, is not acceptable at this time due to several reasons. When internet delivery becomes feasible, this standard will be revised to reflect the policies and procedures for doing so and contractors will have the option of that mode instead of via physical medium.

2.1.3 Labeling of Physical Media

2.1.3.1 General

The primary objective in labeling STI Products delivery medium is to provide for visual identification of the general contents, i.e., without having to insert the medium into a computer. Each of the allowed medium have different dimensions and present different labeling problems. In addition, there are classification marking considerations. In some cases, these standards will be used for the production of multiple copies in digital form for distribution as a product itself, such as the distribution of software code. Labels must be applied to the medium and to the protective outer covering, for example: sleeve, envelope or plastic (jewel) case.

2.1.3.2 Logos

Contractor logos may be used on labels for data delivery but not for labels placed on medium for distribution of products such as software or electronic versions of technical documents.

2.1.3.3 Data Delivery

The following information (*can be handwritten*) is required on the protective covering (sleeve, envelope, or plastic case) and on a label on the medium for all information delivered to DSWA:

a. Brief Descriptive Title

b. Contract Number

c. CDRL Item(s)

d. Item Y of X items (e.g., Disk 1 of 4)

e. Contractor/Organization

f. Date of submission and (optional) version number if there are multiple versions

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g. Author

For those items protected by a plastic case, such as CD-ROMs and iomega® ZIP™ disks, the hinge end should be labeled with the Brief Descriptive Title.

2.1.3.4 Unclassified Contents

If the contents are unclassified, the medium and the enclosing protective covering should be marked Unclassified.

2.1.3.5 Classified Contents

If the contents are classified, the medium and the enclosing protective covering shall be marked to indicate the highest classification of the contents. In as much as space permits, warning markings should also be included. For those items protected by a plastic case, the hinge end should be labeled with the Brief Descriptive Title and the overall classification. See 5.13.1 Removable AIS Storage Media for a detailed discussion of requirements.

2.1.3.6 Labels on Products for Distribution

Labels for products that will be reproduced and distributed by DSWA should be prepared in accordance with the guidance for software packaging. See "Software Packaging Labels" on page 24. These products include Technical Reports, Project Officer Reports and other documents.

2.1.4 Descriptive Listing of Contents

A file named "contents.ext," where ext should comply with 2.1.6 File Naming Conventions, should be placed on each delivery media. This file should provide a descriptive listing of all files on the medium and will be the first file to be opened upon receipt at DSWA. This file will list each file on the delivery medium, by file name with a description of the file contents. The description should include the following:

Header information that repeats the information marked on the outside of the medium:

- Brief Descriptive Title
- Contract Number
- CDRL Item(s)
- Item Y of X items (e.g., Disk 1 of 4)
- Contractor/Organization
- Date of submission and (optional) version number if there are multiple versions
- Author
- Comments as desired

For each file:

- filename
- creating application and version
- description of file contents
- additional information as desired

The "contents.ext" file can be a HTML or PDF document linked to the files or an ASCII file (See Glossary for definition.) that provides the information without links. See "Figure E-10: Example page: Contents.txt file" for an example.

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2.1.5 Internal File Labeling

Labeling of delivery media provides for visual identification of the general contents. However it is very easy for individual files to be transferred and separated from their delivery medium. It is important for certain information to be incorporated into the individual files. Therefore individual files should be labeled electronically. The internal file labeling requirements are set forth in Section 4: Digital Standards, under the requirements for the different types of information. Additional labeling requirements for classified files are set forth in 5.12 Marking Special Types of Documents.

2.1.6 File Naming Conventions

2.1.6.1 Current Standard

All file names should be in accordance with the ISO 9660 Level 1 file naming convention. This standard defines a file name in the form *filename.ext*, where *filename* is between 1 and 8 alpha-numeric characters (including underscores) and *ext* is between 0 and 3 alpha-numeric characters (including underscores). No period is required if no extension is used. This standard is often refereed to as the *8.3 Standard*. This is the standard normally used on multi-platform CD-ROMs.

Adherence to this standard is important so that all relevant computing platforms can access the electronic medium. "Relevant" refers to the computing platforms used by DSWA and its customers. At present the relevant computing platforms are considered to include:

- DOS
- Windows 3.x
- Windows for Work Groups
- Windows 95
- Windows NT
- MAC OS
- UNIX
- VMS

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2.1.6.2 File Name Extensions

In addition to the 8.3 naming convention described above, files should be given an extension as a function of the format of their contents. Table 2-1 "File format—extension mapping" provides a mapping between file format and required extension for a number of common file formats.

2.1.6.3 File Base Names

Whenever possible and unless otherwise specified, select a base file name as the base name of all files associated with a particular data item (*basename.ext*). If multiple files of a particular format are submitted for a particular data item, append an integer, starting at one, after the base name but before the extension (*base#.ext*). For example, if the chosen base name is "*baker*" and a single HTML document is to be submitted, name that HTML document "*baker.htm*". If multiple HTML documents are to be submitted, name them "*baker1.htm*", "*baker2.htm*", "*baker3.htm*", etc.

2.1.7 Future File Naming Standard

The 8.3 standard was chosen over the more expressive file naming standards of Windows 95, MAC OS, UNIX, and VMS because it is consistent with the least common denominator of all rele-

Table 2-1. File format—extension mapping

File Type	Formats	Extension
Images	GIF	.gif
	JPEG	.jpg
	TIFF	.tif
	PICT	.pic
Document	Postscript	.ps
	PDF	.pdf
	HTML	.htm
	ASCII Text	.txt
Audio	ULAW	.au
	Wave	.wav
	Midi	.mid
	Aiff	.aif
Video	Quicktime	.mov
	AVI Video	.avi
	MPEG-1	.mpb
	MPEG-2	.mpg

File Type	Formats	Extension
Archive & Compression	TAR	.tar
	ZIP	.zip
	UNIX Compress	.Z
	GZIP	.gz
	Binhex	.hqx
	Stuffit	.sit
	Self-Extracting-Archive	.sea
Application Specific	Rich Text Format	.rtf
	Word File	.doc
	Power Point File	.ppt
	Excel	.xls
	WordPerfect	.doc
Other Data	ASCII Tab-Separated-Values	.tsv
	ASCII Comma-Separated-Values	.csv
	Binary Numeric	.nar
	Metadata Label	.lbl
	SGML	.sgm

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vant computing platforms, specifically: DOS, Windows 3.x, and Windows for Work Groups. As these operating systems are superseded by Windows 95 and Windows NT, they are becoming less important with time and in the foreseeable future, will no longer be considered constraining.

When DSWA estimates that there are insufficient DOS, and Windows 3.x users of its digital products to constrain file naming, a more expressive naming convention can be accepted. Such a naming convention would allow longer base file names of up to 27 characters. This standard would be equivalent to an alpha-numeric (with underscore) 27.3 standard. The constraints associated with this standard are required because:

- Windows 95, Windows NT, and VMS require no extension or less than a 3 character one.
- MAC OS requires a file name less than 31 characters (27 characters for the base name, a period, and up to three characters for the extension).
- VMS requires one and only one period (before the extension).

2.2 SUBMISSION PACKAGE PREPARATION INSTRUCTIONS

The requirements set forth herein address the submission of all STI Products to DSWA. "*Draft Final*" and "*Camera Ready*" copies of Technical Reports and Project Officer Reports should be sent as directed by the CDRL. Other items should be sent to the COTR.

2.2.1 Inquiries

Any questions concerning the preparation and submission of material should be addressed to the COTR.

2.2.2 Virus Checks

All delivery media should be checked for computer viruses prior to being wrapped for submission to DSWA.

2.2.3 Mailing Instructions for Unclassified Information

Use standard practice for transmitting unclassified material. Attention lines indicating offices or individuals, as appropriate, may be placed on the labels.

2.2.4 Mailing Instructions for Classified Information

When transmitting envelopes or packages containing classified information to DSWA, the information must be double wrapped with the inside envelope/wrapper marked with the classification of the information being sent. Use both inside and outside labels. Labels on the outside must not have an attention line for individuals, however, "Document Control" may be placed on the outside for routing purposes. Place attention lines indicating individuals on inside labels only. Information classified TOP SECRET must be transmitted via the Defense Courier Service. SECRET information must be sent via registered mail, while CONFIDENTIAL may be sent via registered mail, certified mail or first class mail.

2.3 PREPARATION INSTRUCTIONS

2.3.1 Technical Reports and Project Officer Reports

Note: *Technical Reports and Project Officer Reports should always be submitted by themselves, with no material located on the medium that is not intended to be reproduced and distributed with the report.*

Note: *It has been recommended that the terms "draft final version" and "final version" be substituted for "draft final copy" and "camera-ready copy" when CDRLs are revised and this standard is finalized, but no decision has been made. The current terminology is used to avoid confusion for those familiar with current requirements.*

2.3.1.1 Draft Final

The draft final copy of the report should be submitted to DSWA in PDF format. Every page should be marked indicating that this is the draft final report, with a date. This can be accomplished using the header and footer but the use of a watermark is encouraged. Using a watermark will require fewer adjustments and reduces the possibilities of errors when the draft final marking and date is removed for the camera-ready copy. For the draft final copy, there will be items on the SF298 that cannot be completed because that information does not become available

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until the review process. This information will be provided to the contractor when the draft final copy is returned with Completion Instructions.

2.3.1.2 Draft Final Report Cover

The cover for the draft final copy should be a draft version of the final cover, except:

- The words "Draft Final" should be printed in normal text or as a watermark in at least 72 point type. This should be placed so that it does not interfere with the placement of other items on the cover nor prevent them from being read.
- Technical Report Number should be blank
- Preliminary classification markings, distribution statements, and other items that will be finalized during the review should be entered in the correct place and manner, subject to change during the review process.

2.3.1.3 Draft Final Back Cover

For unclassified reports no back cover is needed. The draft final copy of classified reports should contain a draft back cover using the Preliminary classification markings. See "Overall Classification Marking" on page 39. for the information that must be displayed. The words "Draft Final" should be printed in normal text or as a watermark in at least 72 point type.

2.3.1.4 The Review Process

Upon receipt at DSWA, a hard copy will be printed at DSWA for use in the review process. During the review process, the COTR will use the hard copy and the PDF version for the technical review. The hard copy will be used for the Editorial, Security, and Public Affairs reviews. The PDF version will be reviewed to verify links and any features, such as embedded video, that can not be observed in the hardcopy. Following any of the reviews (Technical, Editorial, Security, or Public Affairs) the draft may be returned for revisions and resubmission as a draft final.

2.3.1.5 Completion Instructions

When the review of the draft final copy is completed, the DSWA will return the marked up draft to the contractor with instructions for completing the camera-ready copy for reproduction and distribution.

2.3.1.6 Camera-ready Copy

The camera-ready copy of the report should be submitted to DSWA in PDF format for duplication and distribution.

2.3.2 Other Types of Information

All other types of information should be submitted to the COTR in the format appropriate for the information. Different types of information may be included on the same delivery medium. It is very important that the contents.ext file be complete enough that the recipient, even if unfamiliar with the project understand the contents of each file and the application needed to open it without actually doing so. To facilitate reproduction and distribution, items that are intended for wide distribution should not be mixed on the same medium with items with restricted distribution.

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2.3.2.1 Documents

All final documents, including copies of correspondence, records of meetings, briefings, etc. should be delivered in PDF format unless other guidance is provided. Interim products and documents intended for use in other briefings or incorporation into other documents, can be delivered in native file format.

2.3.2.2 Software

Software should normally be delivered as a complete package without non-software related information on the same delivery medium.

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Section 3: Format and Content Standards

3.1 GENERAL REQUIREMENTS

3.1.1 DSWA Logos and Seals

Whenever a DSWA logo or seal is to be used, the contractor or other activity should obtain a version appropriate for their software from DSWA Graphics through the COTR for the project. Timely notification is requested for new formats when it is anticipated that a new version will need to be created.

3.1.2 Distribution Statements

Distribution Statements are required on all technical information. The detailed requirements are set forth in *Distribution Statements on Technical Documents*. DoD Directive 5230.24, March 18, 1987, (Department of Defense USD(A), 1987) which states:

> "*Distribution statements shall be applied to all newly created technical documents generated by all DoD-funded research and development, test and evaluation (RDT&E) programs. This requirement applies to newly created engineering drawings, standards, specifications, technical manuals, blueprints, drawings, plans, instructions, computer software and documentation, and other technical information that can be used or be adapted for use to design, engineer, produce, manufacture, operate, repair, overhaul, or reproduce any military or space equipment or technology concerning such equipment*".

This includes all STI products produced by or funded by DSWA. Final determination of distribution is made by the COTR but the contractor is required to place the statement on the information and should be familiar with requirements.

3.2 DOCUMENTS

3.2.1 General Requirements

3.2.1.1 "Print On Demand" Concept

DSWA has adopted the DoD Policy of "Print on Demand." This means that documents will be distributed in digital form. If a user wants a hard copy, it must be printed by the user. The user must be able view all information on screen. The producer must rotate such pages in the electronic form so that all pages can be viewed in the proper orientation without action by the viewer.

3.2.1.2 Page Size and Image Area

The paper most commonly used in the United States is US Letter, (8½ x 11 inches) and should be chosen for most tasks, even though the documents will be viewed on-line. This is the only paper size that a user can be expected to have available for printing. Special projects requiring the use of nonstandard sized paper should not be undertaken without prior consultation with the COTR. See "Oversized Illustrations and Inserts" on page 28 for requirements concerning oversized illustrations and inserts.

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3.2.2 Units of Measurement

The US Congress declared in 1988 that it is the policy of the United States to designate the metric system of measurement as the preferred system of weights and measurements and required each Federal Agency to use the metric system of units in its procurements, grants and other business activities by the end of fiscal 1992. U.S. customary units should only be used when one of the cosponsors of the work requires their use. When U.S. customary units are used in a report, either dual units of measurement should be used or a conversion table must be included. It should only reflect the units which are relevant to the report. Table 3-1 "Conversion table" is an example conversion table. Click here to see another example, using HTML.

Table 3-1. Conversion table

To Convert From	To	Multiply By	Exponent
ångström	meter (m)	**1.0**	E-10
atmosphere, standard	kilopascal (kPa)	**101.325**	
atmosphere, technical	kilopascal (kPa)	**98.0665**	
barn	square meter (m^2)	**1**	E-28
British thermal unit[a] (Btu)	joule (J)	1055.056	
curie	becquerel (Bq)[b]	**3.7**	E+10
roentgen	coulomb/kilogram (C/Kg)	**0.000258**	
ton (explosive force of one ton of TNT)	joule (J)	**4.184**	E+09

a. The British Thermal Unit used in this table is the International Table Btu defined at the Fifth International Conference on The Properties of Steam (London, July 1956)

b. The becquerel (Bq) is the SI unit of radioactivity; 1 Bq = 1 event/s

A conversion table should be placed just after the initial use of data where the conversion table would be useful. If the conversion table is longer than half a page, it should be placed as an appendix with the initial reference made just after the initial use of data where it would be useful. Subsequent reference is a choice of the author. Factors should be given to seven significant figures except when more precision is not warranted. An exact conversion factor should be set in boldface type. Factors that are too large or too small to fit into the field of the table are to be expressed in exponential notation. *American National Standard for Metric Practice*[1] (IEEE Standards Coordinating Committee 14, 1992), which has been adopted by the US Department of Defense, should be consulted for a complete listing of conversions and for the guidance for the application of the modernized metric system. It also contains general guidance on proper style and usage.

1. Of particular interest are section 3.3.3 - Units in Use with SI Temporarily and section 3.3.4.3 - Unit Names to Be Avoided.

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3.2.3 Technical Reports

3.2.3.1 General: Elements, Organization and Design

The elements, organization, and design of DSWA Technical Reports and Project Officer Reports should be in accordance with ANSI/NISO Z39.18-1995 *Scientific and Technical Reports — Elements, Organization, and Design* (National Information Standards Organization, 1995).

> **Note:** *The variances from ANSI/NISO Z39.18-1995 are provided herein for review purposes but will probably not be included in the final version of the standard because they will be incorporated into the pertinent CDRLs.*

3.2.3.2 Variances From ANSI/NISO Z39.18-1995

ANSI/NISO Z39.18-1995 is designed to support "the electronic publication of hard (paper) copy while also acknowledging that reports are also produced, stored and retrieved in electronic format." Paper and electronic documents have different design constraints that are not easily reconciled in a single standard. The following provide supplemental information where Z39.18 is not appropriate for digital data delivery or because of DSWA unique requirements. *For convenience, the numbers and heading titles below are those of Z39.18.*

a. 4.1.1 Cover

The cover of DSWA Technical Reports and Project Officer Reports should be the first page that comes on screen when the digital document is opened by the viewer. The following data elements and considerations are in addition to or in lieu of the guidance in section 4.1.1 of Z39.18.

Performing Organization. The name and complete address of the organization that prepared the report should be placed below the authors name. The address must be the same as that used for the contract.

Publication Date. The publication date should be the month and year the camera-ready copy is submitted to DSWA.

Type Of Report. The type of report should be placed below the publication date. The following are authorized types of reports: Technical Report, Project Officers Report, Handbook, Electronic Handbook, Symposium Report.

Contract Number. The DSWA contract number will be placed on the front cover. Contract modification numbers should not be listed. If there are two or more contract numbers, the primary contract number will be listed first followed by the additional contract numbers.

Distribution Statement. The distribution statement will be placed on the front cover directly below the DSWA contract number.

Other distribution limitations. Additional distribution limitation statements, such as export control warnings may be required.

Classified Reports. Classified reports require additional markings. See 5.4 Marking Classified Documents and Other Material for requirements.

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Seals and Logos. DSWA logos shall not be used on the cover of DSWA TRs and PORs. The cover should contain two seals. These are normally the seal of the Department of Defense, on the left hand side and the DSWA seal on the right side. However, when the work is cosponsored with and jointly published with another organization, the two seals should be those of DSWA and the other organization.

a. 4.1.2 Title Page

DSWA TRs and PORs do not use a title page.

b. 4.1.3 Report Number

The *report number* is assigned by the DSWA Editorial staff when the draft final copy is processed at DSWA. It should not be included on the cover or the report documentation (see below) of the draft final copy but shall be added for the camera-ready copy.

c. 4.1.4 Report Documentation (SF-298)

Electronic versions of blank SF-298's are available from several sources in formats compatible with all expected platforms. The following URLs are some examples. Additional versions can be found using internet search engines.

- Microsoft Word (Windows)— http://tram.rice.edu/TRAM/forms/standard.pc.html
- Microsoft Word (Windows)— http://www.dtic.mil/dtic/sf298-word.zip
- Microsoft Word (Macintosh)— http://tram.rice.edu/TRAM/forms/standard.mac.html
- WordPerfect— http://www.dtic.mil/dtic/sf298-wp.zip
- FileMaker— http://mantis.dcrt.nih.gov/NIHForms/fmpro/procurement/SF298.FP3
- Delrina— http://web1.whs.osd.mil/icdhome/SFEFORMS.HTM

Appendix B of Z39.18, as well as instructions with the electronic versions, provides general instructions for completion of the SF-298. The below provides specific guidance to meet DSWA processing needs.

Block 2. *Report Date*. This should be the same as the publication date described above.

Block 7. *Performing Organization*. This is the same information that appears on the cover.

Block 9. *Sponsoring/Monitoring Agency*. Enter the following information, and enter the office symbol and last name of the COTR who reviewed the report.

Defense Special Weapons Agency
6801 Telegraph Road
Alexandria, VA 22310-3398
Office/COTR

If the work is sponsored by additional agencies, enter their name and official address also.

Block 10. *Sponsoring/Monitoring Agency Report Number*. Enter the Technical Report Number supplied by the DSWA Editors during the review process.

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Block 11. *Supplementary Notes*. Place the work sponsorship statement in this block as follows: "*This work was sponsored by the Defense Special Weapons Agency under RDT&E RMC code(s) (enter the appropriate code or codes) 25904D.*"

Block 12a. *Distribution/Availability Statement*. For draft reports, preparers may but do not need to enter a recommended Distribution Statement (See 3.1.2 Distribution Statements). The Distribution Statement will be assigned during the DSWA review process and the final statement will be contained in the Completion Instructions for placement in the camera-ready copy. The term *ITAR* should also be entered in this block if the document is subject to Export Control Restrictions.

Note: *Documents containing Restricted Data or Formerly Restricted Data or reports released to NATO will not bear the export control warning notice nor will the term ITAR be placed in block 12a.*

12b. *Distribution Code*. Leave blank.

13. *Abstract*. This is one of the most important parts of the SF 298 because the words used will affect whether the report will be picked up in a search of abstracts and the information will determine whether users will decide to read the report. ANSI/NISO Z39.14-1997 Guidelines for Abstracts is an excellent guide to drafting abstracts.

The abstract of a classified report should be unclassified if possible and contain publicly releasable information. Portion mark classified abstracts.

15. *Number of Pages*. The number of pages should include all pages after the cover. DSWA may or may not attach the distribution list to the report. A distribution list attached as part of the PDF file is done so as a matter of convenience. This does not make it part of the report and will not affect the page count.

17. *Security Classification*. Enter the highest security classification of the report, using all capital letters.

18. *Security Classification of this page*. Enter the overall security classification of the first page of the SF 298, using all capital letters. If the classification listed in this block is not "UNCLASSIFIED," ensure that all pertinent information on the page is portion marked.

19. *Security Classification of Abstract*. Enter the security classification of the abstract, using all capital letters

20. *Limitation of Abstract*. Enter SAR (Same as Report)

If insufficient spaces exists on the SF 298 for all of the information required, use a continuation sheet. For classified reports, two items of information should be entered on this sheet.

If the report is classified, enter the classification guidance used to classify the report after the words "Classified By." This statement should be exactly the same as the wording used

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on the cover. In addition, enter the declassification/downgrading schedule after the words "Declassify On."

d. 4.2.7 References

Appendix F of this standard provides examples of intext citations and bibliographic listings for one style of preparing references. For classified reports, the classification of every reference must be listed. For unclassified reports, only the classification of classified reference need be listed. In addition, when classified references are cited, the title must include the classification marking.

> **Note:** *There is no longer a restriction on the inclusion of classified references in unclassified reports as long as the information to be included is unclassified.*

e. 4.3.1 Appendices

Split lines for the appendices designation and appendices title is not required as this is incompatible with the use of automatic creation of Table of Contents in most word processing and desktop printing applications.

f. 5.2 Visual and Tabular Material

PDF documents can only be viewed one page at a time. Therefore, when tables or figures cannot be placed on one page, the viewer will have to print it to see the entire table or document. Subsection 5.2.1 discourages the use of color because of problems with reproduction. This is unnecessarily restrictive for digital distribution and the use of color is encouraged.

In drafting a technical report, many preparers have learned that it is better to not to paste graphics into the document but insert them by reference or linking to the graphic file. This ensures the highest quality when printing or converting to the PDF format. *The Visual Display of Quantitative Information* (Tufte, 1983) is an excellent reference for consulting when planning the graphic display of complex numeric information. Many graphics used in DSWA reports are the graphical display of the results of complex calculations. The need for high quality graphics means that these displays need to be saved as a high resolution graphic file.

g. 5.3.2 Image Area

For online documents, it is possible to use oversized pages which exceed the sizes discussed in Z39.18. The use of oversized pages should be limited but they are not prohibited and will be necessary in some cases to present the desired information. Preparers should be aware that users will have difficulty printing them and may not be aware they are present. The PDF version of an oversized page can be prepared to be framed in the window. Thus the user may not note that the page is not a standard size. If the user attempts to print the portion containing the oversized page, only a portion of the oversized page will be printed. However by printing the page by itself, the user can print it reduced to fit the paper or print that page on a printer capable of printing it at full size.

h. 5.3.4 Line Length

Measurements in Z39.18 are expressed in picas. (See Glossary for definition.) For most word processing systems and desktop publication software the units of measurements is not a document specific parameter and it is easier for users to work with inches at all times. Therefore for ease of users, the Z39.18 values are expressed in inches :

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Table 3-2. Picas to inches conversion table

Parameter	Picas	Inches
Line Length	40 - 43	6 ⅔ -7 ⅛
Column Width	20	3 ⅓
Column Separation	2	⅓

i. Typography (5.3.4)
The requirements of Z39.18 section 5.3.4 are primarily established to meet the needs of producing readable hard copy. While "Print on demand" means that the documents will most often be viewed on screen, it is possible for viewers to increase the magnification to make small type readable. A more important consideration is readability of the information across all platforms. Several software packages are used to add equations to documents and some of these use application specific typefaces. When creating a PDF file for documents that contain formulas and equations using special typefaces, it is important that those typefaces be embedded in the PDF file. Otherwise, the resulting file will not present the same image on another machine.

j. 5.4 Pagination
The SF-298 is numbered page i. All others are numbered as per Z39.18.

3.2.3.3 Additional Guidance

Preparers of DSWA reports should not, as general practice, include copies of other reports as an appendix. If the other report is considered by the author as important to the understanding of the new material, it may be provided in electronic format on the same media as the primary report and its presence mentioned or linked by hyperlinks from appropriate places in that report. These ancillary or supplemental files should also be submitted in PDF format. In this instance PDF conversion of a scanned image is acceptable.

3.2.3.4 Special Features of Digital Versions

a. Hypertext Links
General. Hypertext Links in the electronic versions of reports should make it easier to find information and encourage a user to explore a topic in more detail. Links can be either internal—to text or information contained within the document, or external—to information remote from the document containing the link. For consistency, PDF internal links should be displayed in blue type in the electronic document; these will not be apparent in the printed version. PDF links to external documents, i.e., URLs, should use blue underlined type.

Table of Contents. The PDF version of all Technical Reports and Project Officer reports should have, as a minimum, hypertext links to the first order headings. It is preferred that all Table of Contents entries be linked to the associated text. However, the ease of doing this is a function of the software used and it is not a requirement.

Table of Figures and Table of Tables. If figures and tables are scattered throughout the report, entries in the Table of Figures and the Table of Tables should be linked to their associated figures and tables.

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Index. The usability of the index will be improved if key entries in an index are linked to the associated information. Minor entries need not be. For example, if an index has five pages with information concerning lasers, but while one is a lengthy description of the lasers used in a project and the others only mention the use of a specific laser, only one link is needed. This is an area which relies upon the judgment of the author as to where links belong. As users become more experienced in using the search function of the Acrobat Reader, the need for indices will diminish.

Other. Hypertext links can be used in the "Summary" to lead a viewer to find more detailed information. External links should be minimized since they will seldom remain valid for the life of the document. This document is an exception to that rule since it is planned to be updated frequently.

b. Embedded or Linked Objects

The use of embedded or linked objects, such as video clips, or Java calculators in conversion tables is encouraged so long as it aids the transfer of information, and encourages the user to explore a topic in greater detail. Click here for an example. Computer-generated time dependent graphics can add a dramatic element to a report and increase understanding of the results being reported.

3.2.4 Briefings

3.2.4.1 General

All text and graphics contained in a briefing should generally be placed for viewing from the same position, either horizontal (landscape) or vertical (portrait). Horizontal is the most frequently used format. When a change in format is required, the preparer should ensure that the PDF version of the slide is rotated so that an on-line viewer will see the slide in the correct perspective.

3.2.4.2 Briefings as Reports

Some formal briefings are later used to create reports. In such instances, the preferred format is vertical, such as the example shown as Figure E-7 "Example page for vertical format for annotated briefing". To do this, the preparer uses software to create small views of the viewgraphs or charts and places them on the same page as the associated narrative text.

When a briefing is used as a report, the charts are numbered Chart 1-1, 1-2, etc. A Table of Contents and/or a list of Charts must be included in the front matter. Other requirements of Technical Reports, such as provision of SF-298 are applicable.

An alternative approach is the horizontal format; see Figure E-8 "Example pages using horizontal format for annotated briefing" for an example. This approach permits the use of full size graphics but has several drawbacks and should be avoided if possible. When used, the preparer should ensure that all pages in the PDF version are properly oriented for on-line viewing.

3.2.5 Other Documents

There are no general rules for other documents. However, the PDF files should be reviewed and adjusted so that a viewer will see the pages in their proper orientation.

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3.3 PHOTOGRAPHS

3.3.1 General Discussion

Photographs record an image. In the context of this standard, photographs are used to document DSWA scientific and technical work; either in the preparation and set up of an experiment or in documenting the results of that work. In some instances, they are the primary record. For example, in early nuclear testing, photographs were the primary method for recording information. The degree of detail that needs to be retained depends upon the use of that information. For example, detail, and therefore resolution, is much more important when a photograph is the source of measurements, than when it is merely used to provide an overall picture of the arrangement of equipment used in an experiment. A photograph becomes a *continuous tone image* when it is converted to digital format. The technical standards appropriate for continuous tone images, are different from those used for other images, such as technical drawings. DSWA has established a standard set of resolutions for use in archiving images, see "4.3 Photographs".The minimum resolutions are those for general use. Higher resolutions should be used when needed for measurements.

3.3.1.1 Types of photographs

This standard addresses three types of photographs; documentary, technical, and scientific. (See Glossary for definition.) Documentary and technical photographs can be taken by digital cameras or conventional film. Scientific photographs are, by definition, only taken by film camera.

3.3.1.2 Marking and identification of photographs

In hard copy form, photographs have a backside that people frequently use to apply identification marking. Photographers frequently use a stamp to apply a frame for the information that they enter about the photograph. Without this, it is difficult to recall what the picture depicts several years later. For classified photographs, information is sometimes recorded on the front as well as the back. Digital versions of photographs do not have "backs" for recording such information. It can be recorded by a couple of ways, with the best approach being a function of how the photograph is digitized and how it will be used. Conventional photographs are digitized by scanning from a print or negative. Digital camera images are created and processed digitally.

For scanned photographs, the information can be written on the front of the photograph before scanning. It should be located out of the main area of interest so that it can be removed by cropping when used within a document. Most image processing software, whether that provided with the scanner or the digital camera has the ability to add comments (information) to the image file that is available to subsequent users but is not visible when embedded in a document or displayed by browser software. As a minimum, the information should clearly identify the subject of the photograph. Additional information would be date and time, location, and photographer.

Classified photographs (see "5.13.3 Photographs, Negatives, and Unprocessed Film") must have the classification of the photograph readily visible to all users, and therefore the classification must be in the image area. Figure 3-1 "Marking of photographs"depicts how a photograph could be marked to show the needed information.

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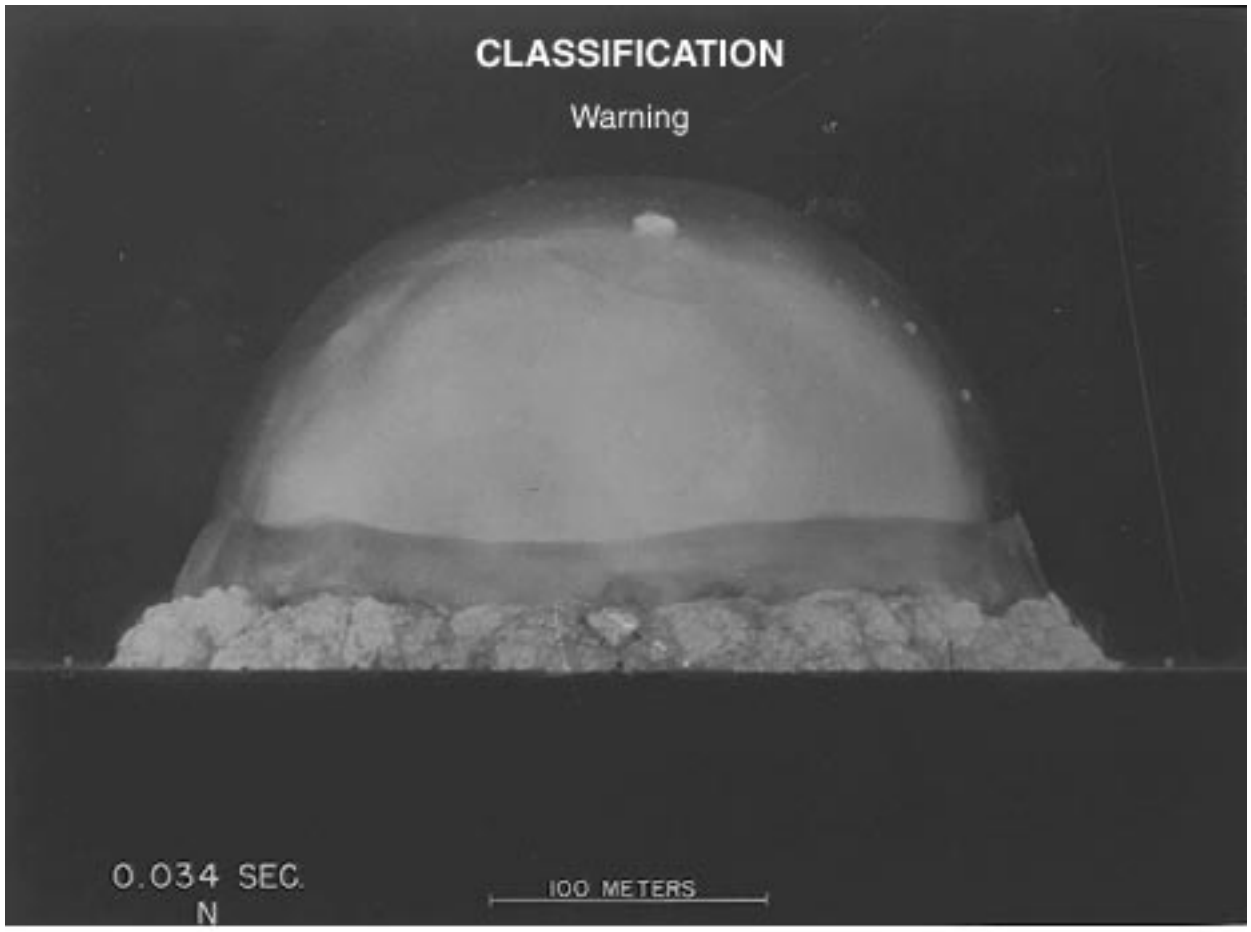

Trinity Fireball at 34 milliseconds

Figure 3-1: Marking of photographs

3.4 ENGINEERING DRAWINGS AND DIAGRAMS

The information content and format of engineering drawings and diagrams is a function of the job. Distribution statements are required and classified drawings must be marked in accordance with 5.13.5 Blueprints, Schematics, Maps and Charts.

3.4.1 Maps and Site Drawings

All maps and site drawings should be developed using the World Geodetic System (WGS) 1984, or WGS 84 datum and the datum should be clearly indicated on the map or drawing. When it is more cost effective to update a site drawing or map based on an earlier datum, that datum should be identified and a site visit with an accurate global positioning system GPS set to WGS 84 should be used to establish a WGS 84 reference point. Standard United States Geodetic Survey (USGS) cartographic symbology should be used.

3.5 SOFTWARE

3.5.1 General

These standards are designed to provide a minimum level of information for the user and establish standards for common software elements such as Title Screen.

3.5.2 Data Elements

3.5.2.1 General

The terminology used in this section conforms with that of *ANSI/NISO Z39.67-1993 Computer Software Description* (National Information Standards Organization, 1993). Key definitions can be found in Appendix A. A table, similar to that of the one in Z39.67-1993 tailored to DSWA unique requirements are provided in Appendix G. Items that are not applicable, such as Standard Address Number and UPC are not included. The table summarizes the mandatory (MAN), conditional (CON) and optional (OPT) information that should be provided for all software. Those elements identified as MAN must appear. Those data elements identified as CON must appear when they apply. Data elements identified as OPT are optional, but when used, should use standard terminology.

3.5.2.2 Form of Data Elements

All data elements should be eye-readable, in other words they should not use bar codes or some other machine (only) readable method to present information. Unless otherwise specified herein, there are no other restrictions on the order, form, color, typography, placement and other technical details of the data elements.

A data element should be given in the same form wherever it appears. For example, a title given in the form "ColorSet" is not the same as a title given in the form "Color Set" or in the form "ABC Company's ColorSet." A name given in the form "J.A. Smith" is not the same as a name given in the form "J. A. Smith" or "John Arthur Smith."

3.5.3 Version Numbering

Standard commercial practice should apply to version numbering. In other words, versions should be of the form "*a.b.c*" where "*a*," is the number of major releases; "*b*" represents the sequence number of minor versions within a major release and "*c*" is used to distinguish between maintenance or "bug" releases.

3.5.4 DATE

There are several types of dates used in the software industry, *publication date*, *distribution date*, *copyright date*, and *release date*. For DSWA purposes, the *release date* should be used wherever a date is appropriate. The *release date* is defined as the date the software is released for distribution, whether or not actual distribution is effected on that date.

3.5.5 Licensing Agreement

Most DSWA developed software is released for evaluation or use by others when it reaches a certain stage of development. DSWA uses different licensing agreements (See Glossary for definition.) for the release of software, depending upon several factors, including the stage of development, the maturity of the software, and the distribution statement assigned. The licens-

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ing agreement desired will be provided by the COTR and a copy should be included as part of all software release packages.

3.5.6 Documentation

For DSWA developed software, the documentation will normally consist of Programmer Documentation and Users Manuals. Additional documentation for verification and validation may be required for certain software. All documentation will be assigned a distribution statement and, if classified, marked appropriately in accordance with 3.1.2 Distribution Statements and 5.13 Marking Special Types of Materials.

3.5.6.1 Programmer Documentation

Programmer documentation is documentation of the code intended to assist DSWA and or its contractors maintain and possibly continue development of the code after the completion of existing development. The extent of documentation required is a function of the program and the contract under which the software is developed. Programmer documentation and, where required annotated code, should be delivered to DSWA on a different medium from the software package assembled for distribution to users.

3.5.6.2 User Manuals

Users Manuals are intended for use by the user to obtain the full benefits of operation of the code. If more specific requirements are not imposed by the contract, standard commercial practice should apply. Users manuals should be delivered on the same medium as the software so that they will accompany the software when it is distributed.

3.5.6.3 Verification and Validation Documentation

When required, verification and validation documentation should be described in other documentation but the actual V&V documentation is not normally required as part of the software package delivered to users.

3.5.7 Associated Data Files

A minimum set of data files, sufficient to test and learn the use of the software, shall be included as part of all software packages. The documentation should describe the data files needed for operation.

3.5.8 Software Version Description

A Software Version Description may be required by the CDRL as part of a software delivery, in which case, it applies to version updates but not maintenance releases. This file performs the function of the SF-298 with respect to software. See Table G-1 Software data elements for the information required. The following information is in addition to or explains the data elements of that table:

a. Evaluation/Certification Statement.

Documentation Status. Statement of the status of the User Guide and other documentation.

Reference Descriptor. Listing of pertinent references

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Validation. Description of how the code was tested and validated.

External Reference. If this software is co-sponsored or developed in conjunction with another activity, enter the number used by that organization to refer to this software.

b. System Requirements

The system requirements that need to be described in documentation and the Software Version Description include but are not limited to:

Language Name: PASCAL, BASIC, PERL, C, OBJECT_ORIENTED_C, FORTRAN, ADA, FORTH

Compiler Name. examples: CC, GCC, ACC, PASCAL

Library Name: MOTIF, SUNVIEW, X11

Operating System (including version): examples: WINDOWS 95, MSDOS, VMS, UNIX

Minimum (and optimum) *memory* size required to run the code.

Minimum (and optimum) *storage* space required to create and run the code, including on-line documentation and on-line help files.

Minimum and optimum *display requirements*.

Other items needed — Hardware, software or data files needed, such as FORTRAN 77 complier, graphics board, video capture board, DEM map files.

c. Software Description

The software description should include a general description plus key terms that can be used in a search of software version descriptions to locate software of interest to a user. The components include:

General Description. This is the software equivalent of an abstract of a technical report. It should provide a general description of what the code does and how it accomplishes it. This should include if possible background, purpose or problem addressed, limitations, inputs, outputs, typical runtime/cost. If the software is used in conjunction with or requires other codes for pre- or post-processing, identify such related software.

Subject type. Descriptive words or phrases that capture the technical area and the computational approach used, such as Weapons Effect, Finite Element, Explicit, 3D.

Software Type. Select the most applicable of the following categorization terms: Effects, Simulation, Model, Application, System, Computational Aid

Software Development Status. Ongoing, Completed, Active, Inactive, Operational

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d. Software Packaging Labels

Labels should be prepared for placement on the media and external packaging which will be for distribution of the software. See Packaging and Physical Carrier columns on Table G-1 "Software data elements" for required information. Software packaging labels are documents and should be submitted in PDF format for printing and use in the reproduction and distribution process.

3.6 NUMERIC DATA

Numeric data is numeric information that results from tests or simulations. Numeric test data can result from any of the various stages such data goes through. It consists of identification information, such as test name, instrument, etc., and numbers. Numeric data must be reviewed and assigned an overall classification and a distribution statement. If the numeric data is classified, each element of the identification information must be portion marked. The numeric information as an entity must also be assigned a classification but not the individual numbers.

The identification information required is a function of the source of the numbers but must be sufficient to identify date and time, location, source and associated units. For classified numeric data, the reason for classification and the declassification schedule must be included as part of the identification information.

3.7 TABLES

Tables must be reviewed and assigned an overall classification and a distribution statement. Classified tables must be portion marked and the reason for classification and the declassification schedule included. Portion marking requires marking of header information and data elements, such as rows or columns, but not individual datum.

3.8 VIDEOS AND DIGITIZED MOTION PICTURES

Industry standards supporting videos and digitized motion pictures compatible on multiple platforms currently exist and are supported at DSWA. These formats are also applicable for audio data. These formats represent an area where standards are still evolving, although the need to support "backward compatible" formats is recognized.

Fast frame scientific motion pictures are often used for capturing high speed transient phenomena. When selected frames from such films are converted into still images for measurements, the images are treated as photographs and the requirements of 3.3 Photographs apply.

3.8.1 Title Screen

The Title Screen must provide the information equivalent to that provided on the cover of a report. That includes but is not limited to Title, Author/Producer, Contract Number, Classification, Classified By, Declassification Instructions, Warnings and Handling Restrictions and any required distribution statements. If multiple versions are produced, the production date and version number should be provided. The Title Screen must display for sufficient time for an average reader to read all of the information, nominally 10 seconds. Videos produced for delivery of information that is intended for DSWA internal use, such as quick reports, may include contractor logos. Videos produced as final products that will undergo distribution outside of the producing organization or DSWA (placing on DARE is considered to be such) should use only the DSWA logo or seal and that or any other sponsoring organization.

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A credit screen may be included to provide a listing of key persons involved in the production of the video. This should not attempt to include everyone and the length of display should be less than that of the title screen. For interview videos whose focus is to capture the knowledge of one or more individuals, introductions combining pictures, text and audio should provide the viewer with the identification and contextual background of the individuals featured.

3.8.2 Trailers

Videos must have a trailer screen that repeats the overall classification and any warnings and handling restrictions.

3.8.3 Embedded Videos and Video Clips

Embedded videos and video clips that are short may omit or reduce the display of the title screen and trailer to a length commensurate with the rest of the video. See "Figure E-9: Example page: Slide with link to animation" for an example.

3.9 TIME DEPENDENT COMPUTER GENERATED GRAPHICS

Unlike videos and digitized motion pictures, fewer commonly accepted industry standards currently exist for time dependent computer generated graphics (animations). Time dependent computer generated graphics are most commonly used to visualize the results of calculations and are frequently application software specific. Wherever possible, the final presentation format should be converted to one of the standards supported for videos and digitized motion pictures for electronic submission. Requirements for Title Screen and Trailers is the same as for videos.

3.10 AUDIO

Audio files should contain a brief portion at the beginning that identifies what the rest of the file contains. This introductory information should include the following data elements:

- Date and Time of recording
- Subject or title
- Length in units of time. i.e., 10 minute recording
- Overall classification (See 5.13.7 Sound Recordings)

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Section 4: Digital Standards

4.1 GENERAL

4.1.1 Data Types

The following table is provided to assist users map the terms they commonly use for data types to the digital data standards used herein.

Table 4-1. Mapping of information types to digital data standard

Information type	Applicable Data Standard
Written documents (Reports, correspondence, briefings, minutes of meetings, etc.)	Document, 4.2.1 Portable Document Format (PDF)
On-line documents	4.2.2 Hypertext Markup Language (HTML) 4.2.3 JAVA
Photographs and other continuous tone bit-mapped images	4.3 Photographs
Engineering Drawings and Diagrams	4.4 Engineering Drawings and Diagrams
Site Diagrams and Maps	4.4.3 Site Diagrams and Maps
Software	4.5 Software
Test Data	4.6 Numeric Data
Database Tables	4.7 Tables
Spreadsheets	4.7 Tables
Videos, Motion Pictures	4.8 Videos and Digitized Motion Pictures
Animated Computer Graphics	4.9 Time Dependent Computer Generated Graphics
Audio	4.10 Audio
Metadata[a]	4.11 Metadata

a. Metadata is a special data type that is called for only in certain contracts.

In addition to selecting the proper format based upon the type of data or information, check 4.2.5 Ancillary Files for additional files to submit and their formats. Check 4.2.6 Native File Formats for additional files which may be submitted

> **Note:** *Whenever possible and unless otherwise specified, select a base file name as the base name of all files associated with a particular data item (basename.ext). If multiple files of a particular format are submitted for a particular data item, append an integer, starting at one, after the base name but before the extension (base-*

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name#.ext). For example, if the chosen base name is "baker" and a single HTML document is to be submitted, name that HTML document "baker.htm". If multiple HTML documents are to be submitted, name them "baker1.htm", "baker2.htm", "baker3.htm", etc. For a description of additional file naming conventions, see "2.1.6 File Naming Conventions"

4.2 DOCUMENTS

4.2.1 Portable Document Format (PDF)

PDF is the format normally required for all documents, particularily those that will be reproduced for distribution, such as Technical Reports and Project Officer Reports. PDF files of electronic documents can be created by the commercial Adobe Acrobat package or by the freely available ghost script package. The Acrobat product includes both a printer driver which generates PDF files directly from any application (such as word processor or desktop publishing system), as well as a stand-alone "distiller" application which generates PDF files from any PostScript file. The ghost-script package uses the "ps2pdf" application to create PDF files.

Whenever possible, PDF files should be saved as optimized, version 3 or later, PDF format to enable "Streaming PDF" capability for improved performance for web-based interfaces. Non-standard fonts used in creating the document should be embedded in the PDF file.

Creating PDF files (*.pdf) by scanning hard copy documents and turning the scanned page images into PDF image only files is not acceptable because the resulting file is not text searchable by the Acrobat® Reader. The scanning conversion process is reserved for use by DSWA for text documents for which there is no electronic version available. An exception is made for supplemental files, that are not part of a report but are provided on the media as a convenience to the reader. See "Additional Guidance" on page 17.

4.2.2 Hypertext Markup Language (HTML)

While HTML documents (*.htm) may be printed, because of their lack of pagination, these documents are primarily designed for electronic use. Therefore, this format is restricted to documents designed solely for electronic use. If the document links to other files, such as tables, diagrams, other text documents, etc., all of the linked files must be included in the submission package. External links are perishable and should be avoided unless the document is expected to have a very short useful life.

As of the date of preparation of this standard, HTML documents can not be used if they contain classified information. One of the reasons for this restriction is that HTML documents cannot be assured of retaining the classification markings and warnings when printed. This is an area where DoD policy and requirements are still under development and subject to change. This standard will be updated to reflect changes in policy. If a valid reason exists to prepare an HTML document the cognizant COTR should be consulted to see if this restriction still exists.

In-line images should be submitted in GIF format (*.gif). Linked images (e.g., figures, tables, photos) should be submitted in JPEG format ('.jpg) if they are intended to be viewed on-line using browsers or TIFF format (see "4.3.4 TIFF") (*.tif) for downloading and viewing by other applications. Both formats may be provided if both situations are envisioned.

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4.2.3 JAVA

Java applications and applets can be delivered. At this time, use of Java is discouraged unless specifically called for as a contract deliverable or if there is no equally effective method for presenting the information. Stand-alone Java applications should be treated as any other software deliverable and follow the guidelines for software deliverables elsewhere in this standard. Java applets which are included in electronic documents should satisfy the guidelines for both electronic document deliveries (similar to GIF or JPEG images as elements of an HTML document), as well as software deliveries (to include source code, a "read me" description and documentation).

If Java is embedded in or called by an HTML document, it is important that it be tested and verified to run successfully across platforms and browsers. Insofar as Java is an evolving standard, minimal assumptions should be made about the environment in which it operates.

4.2.4 Postscript (PS)

This format is not acceptable as a deliverable

4.2.5 Ancillary Files

For HTML documents, an ASCII text file describing all of the linked components of the document (by file name) must be submitted (contents.txt).

4.2.6 Native File Formats

Interim delivery of documents may be made in native file format at the discretion of the COTR. Providers of documents in native file format should ensure that they are in a format viewable or usable by the intended recipient.

Final delivery of all documents must be in either PDF or HTML format. Documents in native file format may be submitted in addition to the PDF or HTML document.

4.3 PHOTOGRAPHS

Still images are considered to be photographs whether they are recorded on film (standard camera) or captured on a light sensitive backing and recorded digitally (digital camera). The images produced by standard cameras are digitized by a scanning process. This scanning process can be completed using the negative or from prints at various degrees of magnification. The images from digital cameras are processed digitally using software supplied with the camera and can then undergo additional processing using other software. In most cases, only the positive image should be delivered. The resolutions referred to below apply to the image at the desired size. For example, an 8 x 10 inch image should not be scanned at 150 dpi if it is intended that the image be viewed at 4 x 5 inches, although it is acceptable for embedded images be scaled to fit into the desired frame in a document.

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4.3.1 Intended Use

The requirements for photographs depends on their intended use. For purposes of this standard, photographs are categorized as *documentary*, *technical*, *scientific* and *web* (See Glossary for definition.). Table 4-2 summarizes the allowed parameters for digital photographs.

Table 4-2. Summary of parameters for photographs

Type of photograph	Format	Minimum Resolution	Color Depth
Documentary, Black and White	GIF for browse image, JPEG for online viewing, TIFF for archives	300 dpi	8 bit
Documentary, Color		150 dpi	24 bit
Technical, B&W		300 dpi	8 bit
Technical, Color		150 dpi or greater	24 bit or greater
Scientific	GIF for browse, actual film for archives	150 dpi	24 bit
Web	GIF	72 dpi	

4.3.2 JPEG

Photographs submitted as JPEG images should be of the highest available quality.

4.3.3 GIF

Photographs submitted as GIF images should be made using loss-less compression.

4.3.4 TIFF

Photographs submitted as TIFFs should be converted to TIFF format (*.tif) according to the constraints described below. Digital images created directly by digital cameras are considered to be photographs and should be directly convertible to TIFF by the software supplied with the camera.

4.3.4.1 Black and White

Black and white photos and negatives should be scanned as 8 bit images in TIFF format with LZW compression. The resolution should be a minimum of 300 dpi, and the byte order of TIFF shall be the PC byte order (LSB first). Resolution should only go higher than 300 dpi when image quality at 300 dpi is insufficient.

4.3.4.2 Color

Color photos should be scanned as TIFF images in at least 24-bit color at a minimum of 150 dpi. The compression scheme is the same as black and white photos. Resolution should only go higher than 150 dpi when image quality is insufficient.

4.3.4.3 Classified Photographs

The digital version of all classified photographs must include the classification and any required warning notices as part of the image, viewable when the image is displayed by itself. These should not be located in the main image area but should be located in what would be the margin of the photograph. Figure 3-1: Marking of photographs is an example. Using this approach, the

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image can be incorporated into a document and the classification cropped out, since the classification will be displayed as part of the document.

4.3.5 Native File Formats

Native file formats that may be submitted in addition to the TIFF file include, Kodak PhotoCD®.

4.4 ENGINEERING DRAWINGS AND DIAGRAMS

4.4.1 PDF

The preferred format for diagrams and engineering drawings is PDF. The PDF files should be sized to fit a printed US Letter page. Room should be left for a ¼-inch margin around all the borders. An optional, additional, PDF file may be submitted at full size with a comment in the contents.ext file pointing out that a special printer will be required to print it. The diagram should be produced in whichever format (landscape or portrait) matches the diagram's size.

4.4.2 TIFF

Existing diagrams and engineering drawings should either be scanned as a bitonal/bilevel TIFF (*.tif) image or captured from an aperture card as 8 bit grayscale TIFF image with either LZW or T.6 (Group 4) compression. The resolution should be a minimum of 300 dpi, and the byte order of the TIFF file shall be the PC byte order (LSB first). If negatives are scanned the resulting images may require processing to produce a positive image. Resolution should only go higher than 300 dpi when image quality is insufficient.

4.4.2.1 Native File Formats

Along with the required TIFF images or PDF formats, native file formats are also allowed. Such formats may include CAD or PICT (*.pic) files. As needed, these formats should be submitted with a README file (native.txt) that describes how to assemble the electronic document.

4.4.3 Site Diagrams and Maps

Site diagrams and maps are a special subset of engineering drawings and diagrams which provide the geographic locations of objects and geographic features and cadastral data and parameter field boundaries (such as the boundary of a hazardous waste area). These should be provided in two formats, PDF and ARCINFO. ARCINFO is a proprietary format of the Environmental Systems Research Institute, Inc. that is a defacto standard used by the United States cartographic community. The PDF format is required for easy of reuse and viewing non cartographic personnel. The ARCINFO format will permit the reuse of the information with other cartographic datasets on Geographic Information Systems. The ARCINFO format will be used until Federal Geographic Data Committee establishes a Federal standard for digital cartographic data.

4.5 SOFTWARE

4.5.1 Packaged Data

Software should be submitted as a packaged distribution in a format consistent with the platform under which the software is designed to work. The distribution should include all components required to install and use the software. These components may include source code, executables, documentation, and test data. A UNIX software distribution should be in a tar file and compressed using the UNIX compress utility (*.z). PC software should be in a zip file (use PKZIP that

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is available from DARE) (*.zip). Macintosh software distributions should be in a self-extracting archive (SEA) file inside a binhex file (*.hqx).

4.5.2 Ancillary Files

Two ancillary files that should be included with each software submission are a README file (to explain where and what all the files in the distribution are) and a license file (to describe the conditions under which the software can be used). Both files should be submitted as ASCII text files (readme.txt, license.txt).

4.6 NUMERIC DATA

Numeric data may be submitted in either ASCII or binary format. Only raw (unprocessed) data may be submitted in binary format.

4.6.1 ASCII Comma Separated Values

Numeric data (raw or processed) can be submitted in ASCII format with comma separated values (*.csv). Character fields, which may contain commas, should be enclosed in quotation marks. For display purposes, it is recommended that each field be fixed length, with numeric fields right-justified within the field width, and character fields left-justified. Each record (row) should be terminated with a Carriage Return and Line Feed (CRLF). If there is a header preceding the ASCII numeric data, the record offset to the data must be supplied in the metadata label which accompanies the data file. See "gb613.csv" in the ancillary files for an example.

4.6.2 Binary

Numeric data (raw only) can be submitted in binary integer format with a field length for binary values of 8, 10, or 12 bits (*.nar). Each record (row) can be either fixed length or variable length. Variable length records should indicate the length of each record at the beginning of each record. Each field (column) should be formatted with a fixed number of bits or bytes. Data files which have a binary header must specify the correct byte-offset to the data in the metadata label which accompanies the data file.

4.6.3 Native File Formats

In addition to the required ASCII or binary formatted numeric data, existing native file formats may also be submitted.

4.7 TABLES

4.7.1 ASCII Tab Separated Values

Tables (e.g., database tables, spreadsheets) should be submitted in ASCII format with tab separated values (*.tsv). Databases and spreadsheets must be of a flat nature, i.e., no links between tables. Each field (or column) should be of fixed length and fields should be separated by tabs. Numeric fields should be right-justified within the field width. Character fields should be left-justified. Each record (row) should be terminated with a CRLF.

4.7.2 PDF

Tables may also be submitted as PDF documents (*.pdf) according to the formatting guidelines described above. See "he2.tsv.pdf" in the ancillary files for an example.

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4.7.2.1 Native File Formats

In addition to the required ASCII or PDF table formats, tables may also be submitted in any native file format. Such formats may include: Excel spread sheets or MS Access files (*.xls). For these, the description in the contents.ext file is of particular importance.

4.8 VIDEOS AND DIGITIZED MOTION PICTURES[1]

Video tapes and motion pictures should be delivered in digital form whenever possible. In all cases, except when unedited versions are desired, videos and motion pictures should be edited and extraneous portions cut prior to delivery. DSWA has a modest capability to convert some video and film formats into a standard digital format at the DARE Engineering Center. Contractors should consult the COTR for information on up-to-date capabilities.

> **Note:** *Although industry standards are being used for video and digitized motion pictures at DSWA, this is an evolving field in which standards are frequently updated. Whenever possible, current adopted versions of the standards should be used, rather than older versions, to avoid issues with backward compatibility. The version and format used shall be documented in the STI delivery.*

4.8.1 Video Types

For DSWA purposes, there are three types of motion pictures or videos: Documentary, Scientific Films, and Interviews. A documentary is an informational, general purpose video describing an event or test in general terms. It is not meant for scientific analysis. A scientific video is one used to perform measurements or other analysis in order to further the research being done. Interviews are very similar to documentaries, except they consist of just an interview or discussion with one or more people along with other visual materials used during the interview.

4.8.2 Analog Formats

Currently acceptable analog video submission formats are: Betacam; UMatic; VHS; 8 mm; Laser Disc. Betacam and UMatic represent higher quality formats and are preferred over VHS, 8 mm and Laser Disc. High speed film is also acceptable for scientific video submissions.

4.8.3 MPEG

The Motion Picture Expert Group (MPEG), under the auspices of the International Standards Organization (ISO), has defined standards for the digital compression and decompression of motion video/audio for use in computer systems. These standards consist of MPEG-1 and MPEG-2.

4.8.3.1 MPEG-2

MPEG-2 (*.mpg) is the preferred archival format for interview and documentary videos. MPEG-2 can also be used for fast frame films (i.e., frame rate > 30 FPS).

If a video has been segmented into multiple MPEG-2 files, it should follow the naming convention, (basename#.mpg), where # is an integer incrementing by 1 that represents the ordering of the segments.

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1. In this section, the term video includes motion pictures except where the context is such that it only applies to videos.

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MPEG-2, which builds on the MPEG-1 standard, extends to higher data rates (2-15 Mbps) needed for signals delivered from remote sources (such as broadcast, cable, or satellite). At a compression ratio of 30:1 and smaller, MPEG-2 offers the perception of broadcast quality TV; it supports up to 200:1 compression for greater economy. MPEG-2 is designed to support a range of picture aspect ratios, including 4:3 and 16:9. Digital videos delivered in MPEG-2 format should not be compressed greater than 30:1.

4.8.3.2 MPEG-1

MPEG-1 (*.mpb) may be submitted as an archive format for interviews. When video quality is high enough, MPEG-2 is preferred over MPEG-1.

If a video has been segmented into multiple MPEG-1 files, it should follow the naming convention, (basename#.mpb), where # is an integer incrementing by 1 that represents the ordering of the segments.

The MPEG-1 standard delivers decompressed data at 1.2 to 1.5 MB per second, allowing CD players to play full-motion color 352 by 240 pixel movies at 30 frames per second with full CD quality audio. MPEG-1 compresses at about a 50:1 ratio before image degradation occurs, but compression ratios as high as 200:1 are attainable. MPEG-1 files delivered to DSWA should not be compressed to cause any noticeable image degradation.

4.8.4 Fast Frame Films

Fast frame films (i.e., frame rate > 30 FPS) provide the highest quality images when scanned by a film scanner and saved as a series of TIFF files. Normal practice is to scan a limited set of frames which are subsequently treated as photographs. MPEG-2 used for the remainder of the film.

Each such TIFF file should be named according to the convention (basename#.tif), where # is an integer incrementing by 1 that represents the ordering of TIFFs in the original film.

4.8.5 Ancillary Files

For interviews, if a transcript is a contract deliverable, it should be submitted along with the video. The transcript file should an ASCII text file (basename.txt) with HTML anchor (link) tags to point to various GIF or JPEG for the plots and slides images which were used to illustrate concepts during the interview. The GIFs (*.gif) and JPEGs (*.jpg) for the plot and slide images should also be submitted.

For scientific films processed as TIFF images (see "4.8.4 Fast Frame Films"), a list of TIFF filenames should be provided in an ASCII text file (filelist.txt) - one filename per line. This list is used to construct a QuickTime movie as a browse animation of the individual TIFF images. The TIFFs listed in this file should be a relevant subset of the full set of TIFFs.

A few key frames (approximately four) out of the entire video will be selected to create a thumbnail image. An ASCII text file (thumb.txt) should be provided to describe which frames to use for this purpose. This file should provide *one* of the following:

- a list of TIFF file names
- a list of time indexes (into a video)
- a description of the situation of interest in the video

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4.8.6 Native File Formats

Alternative native file formats may also be submitted as long as the above formatting constraints are satisfied. Note, when archived into DARE, non-standard formats cannot be viewed directly by users. As needed, a README file (native.txt) should be included describing the native file format and player software version.

4.9 TIME DEPENDENT COMPUTER GENERATED GRAPHICS

No well defined standards currently exist for time dependent computer generated graphics (i.e., animations) intended to assist visualization of models and simulations. Until industry standards are adopted and accepted by a sufficient number of software applications, animations should be provided digitally in either in MPEG-1 or MPEG-2 formats. DSWA will index animations as video data.

4.9.1 Native File Formats

In addition to the MPEG-1 or MPEG-2 version, animations may be submitted in a variety of native file formats (e.g., NCSA's HDF). However, they are non-standard and when archived into DARE, users will not be able to view the native file format animations with their browser software. Users will need to download the file and have the correct animation viewer software installed on their local work station to view the file. A README file (native.txt) must be included describing the native file format and player software version. Commonly used Internet graphics file formats for displaying animated graphics, such as GIF or Shockwave, are strongly discouraged, as they are inappropriate for long-term archival.

4.10 AUDIO

DSWA has not defined a file format specifically to support audio recording. The preferred practice is to use one of the standard video formats (MPEG-1 or MPEG-2) with no video track.

4.10.1 Native File Formats

A large number of de facto standards exist for audio files, including Sun sound (.au), Real Audio, MS Windows (.wav) sound files, (.aiff) sound files, MIDI sound files (*.mid) and many more. In the absence of a well defined audio format, audio data files may be submitted in any one of these formats. The submission should include a README file (native.txt) that describes the native file format and the software version.

4.11 METADATA

Metadata labels (basename.lbl) should be submitted with all data products submitted to DSWA. In cases where data products exist in another archive, are relevant to the DSWA community, and will not be included in DARE, metadata labels may be submitted that refer to the data in the external archive.

4.11.1 Specifications

Metadata labels should conform to the Portable Data Specification (PDS) label format used by DARE. Labels are written in the Object Definition Language (ODL) and use a standard set of object definitions, keywords, and standard values for these keywords. These object definitions, keywords, and standard values are defined in the Data Dictionary which is also written in ODL. Because PDS labels are written in ODL without any special mark-up (special control characters

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for interpretation by application software), they are easily transported between computers. They can be created and read by any word processor and parsed by simple application software.

The ODL format is a simple human readable language based on the concept of objects and "keyword=value" statements. For example, AUTHOR_NAME = {"Doe, John S.", "Doe, Joe S."} is a keyword=value pair within the DOCUMENT object. The character set of ODL is the International Standards Organization's ISO 646 character set (i.e., the ASCII character set).

4.11.2 Label Editor - VB and JAVA

The DARE Label Editor should be used to produce metadata labels. Two versions of the Label Editor exist. One version, written in Visual Basic, runs on Windows 3.x, Windows 95, and Windows NT. The second version, written in JAVA, runs on Solaris 2.5, Windows 95, Windows NT. A MacOS version will not become available until sometime after the JAVA Runtime Environment (JRE) for the Macintosh is released. The Label Editor takes as input the DARE Data Dictionary. The Label Editor and Data Dictionary can be downloaded from the DARE software inventory.

The major advantages of the Label Editor are that it will validate input values against label syntax, and provide standard values and units for required and optional keywords with a user friendly interface. The Label Editor uses the Data Dictionary to define it's behavior. If a user needs to update the data dictionary to add more standard values, they should contact the Data Engineer for an updated data dictionary or modify their local copy of the data dictionary after notifying the Data Engineer.

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Section 5: Classification—Determination And Marking

5.1 GENERAL

All classified information shall be handled and marked in accordance with DOD 5200.1R, *Department of Defense Information Security Program Regulation*, dated 17 January 1997 (Department of Defense ASD(C3I), 1997). This section is a compilation of information from that and other sources, including DoD 5200.1-PH, *DoD Guide to Marking Classified Documents* (Department of Defense ASD(C3I), 1996), and should not be considered a replacement for them. If there is a conflict between the original documents and this document, the original documents take precedence. It is provided as a convenience to authors by summarizing and integrating pertinent requirements concerning the determination and marking of classification information.

5.2 CLASSIFICATION AUTHORITY AND RESPONSIBILITY

It is the responsibility of all persons involved in the development, delivery and processing of information resulting from DSWA's scientific and technical research programs to insure that the information is safeguarded as may be required by Executive Order or statute. This section provides guidance concerning the determination and marking of classified information. Any questions concerning the applicability of any of the below directions should be addressed to the COTR.

5.2.1 Original Classification

Original classification is the initial decision that an item of information could be expected to cause damage to the national security if subjected to unauthorized disclosure, and that the interests of the national security are best served by applying the safeguards of the Information Security Program to protect it. This decision may be made only by officials who have been specifically delegated this authority in writing, have received training in the exercise of this authority, and have program responsibility or cognizance over the information.

5.2.2 Derivative Classification

Derivative classification is the process of determining whether information that is to be included in a document or material has been classified and, if it has, ensuring that it is identified as classified information by marking or similar means. Information is derivatively classified whenever it is extracted, paraphrased, restated, or generated in a new form. Application of classification markings to a document or other material as directed by a security classification guide or other source material is derivative classification. Simply photocopying or otherwise mechanically reproducing classified material is not derivative classification. Within the Department of Defense, all cleared personnel who generate or create material that should be derivatively classified are responsible for ensuring that the derivative classification is accomplished in accordance with this Section. No specific delegation of authority is required by persons doing derivative classification. DoD officials who sign or approve derivatively classified documents have principal responsibility for the quality of their derivative classification.

All persons performing derivative classification shall:

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a. Observe and respect the classification determinations made by original classification authorities. If they believe information to be improperly classified they will contact DSWA (OPSSI) for guidance.

b. Apply markings or other means of identification to the derivatively classified material as required by the remainder of this Section.

c. Use only authorized sources of instructions about the classification of the information in question. Authorized sources of instructions about classification are security classification guides, other forms of classification guidance, and markings on material from which the information is extracted. The use of only memory or "general rules" about the classification of broad classes of information is prohibited.

d. Use caution when paraphrasing or restating information extracted from a classified source document to determine whether the classification may have been changed in the process.

e. Take appropriate and reasonable steps to resolve doubts or apparent conflicts about the classification, level of classification, and duration of classification of information. These steps may include consulting a security classification guide or referral to the organization responsible for the original classification. In cases of apparent conflict between a security classification guide and a classified source document about a discrete item of information, the instructions in the security classification guide shall take precedence.

5.3 MARKING AND DESIGNATION RULES

All classified information shall be identified clearly by electronic labeling, designation or marking. If physical marking of the medium containing classified information is not possible, then identification of classified information must be accomplished by other means. The term "marking" is intended to include the other concepts of identification. Classification markings must be conspicuous. Marking is the principal means of informing holders of classified information about specific protection requirements for that information. Marking and designation of classified information are the specific responsibility of original and derivative classifiers. Markings and designations serve these purposes:

a. Alert holders to the presence of classified information.

b. Identify, as specifically as possible, the exact information needing protection.

c. Indicate the level of classification assigned to the information.

d. Provide guidance on downgrading (if any) and declassification.

e. Give information on the source(s) of and reasons for classification of the information.

f. Warn holders of special access, control, or safeguarding requirements.

5.4 MARKING CLASSIFIED DOCUMENTS AND OTHER MATERIAL

Classified documents must bear the following markings. Material other than ordinary paper documents must have the same information either marked on it or made immediately available to holders by another means. (Specific requirements for each type of marking are found in paragraphs 5.5 through 5.11. Requirements for special types of documents are covered in paragraph 5.12. Marking material other than paper documents is covered in paragraph 5.13. Marking of

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foreign government information in DoD documents is covered in paragraph 5.14.) Required markings are:

a. The overall classification of the document.

b. The agency, office of origin, and date of the document.

c. Identification of the source(s) of classification of the information contained in the document and, for originally classified information, a concise reason for classification.

d. Declassification instructions, and any downgrading instructions that apply. This requirement does not apply to documents containing Restricted Data (RD) or Formerly Restricted Data (FRD). This information is not marked with declassification instructions.

e. Identification of the specific classified information in the document and its level of classification (page markings and portion markings).

f. Control notices and other markings that apply to the document.

g. The holder of any improperly marked classified document should contact the document originator or DSWA (OPSSI) to obtain correct markings.

5.5 OVERALL CLASSIFICATION MARKING

Every classified document must be marked to show the highest classification of information it contains. This marking must be conspicuous enough to alert anyone handling the document that it is classified. Using 18-point boldface type, prominently centered at the top and bottom the overall classification will be marked, stamped, or affixed (with a sticker, tape, etc.) on:

a. The front cover, if there is one.

b. The title page, if there is one.

c. Both sides of the SF 298.

d. The first page containing information following the SF 298. If the markings on the first page result in a classification higher than that of information on that page, insert the statement, "This page is (classification of page)." at the bottom of the page, above the overall classification marking and below the page number.

e. The outside of the back cover, if there is one.

5.6 SPECIAL CONTROL MARKINGS AND NOTICES

In addition to the overall classification markings listed above, special control markings or notices are used to inform users that certain documents contain information that requires additional safeguards. Special care must be taken to limit access to this information and its use. Control markings or notices with caveats, if applicable, will be placed on both the front and back covers, both sides of the SF 298, and the first page containing information following the SF 298 (e.g., Summary, Preface, Conversion Table or Table of Contents). Table 5-1 contains the abbreviated versions of the control markings to be used in Block 12a of the SF 298.

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Table 5-1. Classification and control markings

Information	Charts, Tables and Figures	Paragraphs, Subparagraphs, and Captions[a]
National Security Information	TOP SECRET	(TS)
	SECRET	(S)
	CONFIDENTIAL	(C)
	UNCLASSIFIED	(U)
Intelligence Information	ORCON	(__- OC)
	US ONLY	(__- UO)
	US AND (COUNTRY (S)) ONLY	(__-__)
Nuclear Weapon Information	FORMERLY RESTRICTED DATA	(__-FRD)[a]
	RESTRICTED DATA	(__-RD)
	CNWDI[b]	(__-RD)(N)[a]
Proprietary Information (Limited Rights)	PROPIN	(PROPIN)

a. (__ indicates where classification (TS, S, C or U) would be entered, i.e., (S-FRD). __) indicates where US or country ID would be entered. (S-UK)

b. Critical Nuclear Weapon Design Information as defined in DoD Directive 5210.2. Used only with TS-RD or S-RD information.

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5.6.1 Restricted Data

Documents containing Restricted Data shall be marked:

RESTRICTED DATA
This material contains restricted data as defined in the Atomic Energy Act of 1954. Unauthorized disclosure subject to administrative and criminal sanctions.

5.6.2 Formerly Restricted Data

Documents containing Formerly Restricted Data, but no Restricted Data, shall be marked:

FORMERLY RESTRICTED DATA
Unauthorized disclosure subject to administrative and criminal sanctions. Handle as Restricted Data in foreign dissemination.
Section 144.b, Atomic Energy Act, 1954.

5.6.3 Critical Nuclear Weapon Design Information

Classified documents or material containing information designated be "Critical Nuclear Weapon Design Information" (abbreviated CNWDI) according to DoD Directive 5210.2, "Access to, and Dissemination of Restricted Data", shall be marked as follows :

CRITICAL NUCLEAR WEAPON DESIGN INFORMATION DoD DIRECTIVE 5210.2 APPLIES

The complete warning notice will be placed as stated above. This warning notice is used only in conjunction with the SECRET-RD notice or the TOP SECRET-RD notice, never by itself.

5.6.4 Intelligence Information

The Director of Central Intelligence (DCI) establishes policies and procedures for the control of dissemination of intelligence information. The current DCI Directive on this subject is Director of Central Intelligence Directive (DCID) 1/7 dated 15 June 1996. It contains additional security controls and markings and is applicable to classifiers of intelligence information.

1. "ORCON". This marking is used to identify intelligence information. Reports carrying this warning notice will not be disseminated without the advance permission of, and under the condition specified by the originator.

ORCON - DISSEMINATION AND EXTRACTION OF INFORMATION CONTROLLED BY ORIGINATOR

2. "US ONLY" (UO). This marking is used to identify that limited amount of intelligence which an originator has determined to be "Intelligence Which May Not Be Disclosed." It may not be released in any form to foreign governments, international organizations, coalition partners, foreign nationals, or immigrant aliens.

3. US and (specify country(s)) ONLY". This control marking is used when a limited exception to the marking requirements in paragraph 4.5d (2) may be authorized to release the information beyond US recipients. This marking is authorized only when the originator has an intelligence sharing arrangement or relationship with a foreign government approved in accordance with the Director of Central Intelligence policies and procedures that permits the release of the specific intelligence information to that foreign government, but to no other in any form.

5.6.5 Proprietary Information (PROPIN)

Proprietary information, synonymous with Limited Rights, is the authority to use, duplicate, or disclose technical data, in whole or part by or for the Government, with the specific limitation that such technical data shall not be released or disclosed outside of the Government without the written permission of the party maintaining the limited rights.

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Proprietary information or limited rights information is used on unclassified or classified reports. Information bearing this marking shall not be disseminated in any form to an individual, organization, or foreign government.

Reports sent to DSWA that contain limited rights information or display "proprietary information" as the reason within the distribution statement must be marked accordingly. The front and back covers, the SF 298, and the first page of the document following the SF 298 must be marked with the complete limited rights legend. Included on the caveat should be the DSWA contract number and the contractor's name who maintains the proprietary information. An example of the complete caveats follows:

LIMITED RIGHTS LEGEND
Contract No. DSWA-001-90-0001
Contractor: Very Scientific Corporation

The Restrictions governing the use of technical data marked with this legend are set forth in the definition of "Limited Rights" in DFARS 227.471. This legend together with the indications of the portions of this data which are subject to limited rights, shall be included on any reproduction hereof which includes any part of the portions subject to such limited rights. The limited rights legend shall be honored only as long as the data continues to meet the definition of limited rights. Data with limited rights are indicated by the use of sidebars.

Limited rights information on interior pages should be marked by marking the portion or paragraph containing proprietary information by vertical lines on both sides. In addition, an abbreviated Limited Rights Legend should be placed on the bottom outside corner of only those pages containing proprietary information. (See "Figure E-2: Example interior page containing limited-rights legend") The abbreviated Limited Rights Legend should list only the DSWA contract number and the contractor's name shown below:

LIMITED RIGHTS LEGEND
Contract No. DSWA-001-90-0001
Contractor: Very Scientific Corporation

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5.6.6 Foreign Government Information (FGI)

Foreign Government Information (FGI) and International Pact Organization (IPO) Information: Marking of US documents containing FGI or IPO information shall be in accordance with paragraph 5.14 (includes NATO).

5.6.7 Special Access Program and Sensitive Compartmented Information (SCI)

Guidance for marking of documents prepared under any special access program or containing SCI will be obtained from DSWA (OPSSI) on a case-by-case basis.

5.6.8 For Official Use Only (FOUO)

"For Official Use Only (FOUO)" is a designation that is applied to unclassified information that is exempt from mandatory release to the public under the Freedom of Information Act (FOIA). The FOIA specifies nine exemptions which may qualify certain information to be withheld from release to the public if, by its disclosure, a foreseeable harm would occur. For guidance on the

marking of FOUO documents or FOUO information contained in classified documents see Appendix J.

5.6.9 Obsolete Markings

Table 5-2 "Obsolete restrictions and control markings" contains those markings which have been eliminated by the DCID 1/7.

Table 5-2. Obsolete restrictions and control markings[a]

On Charts, Tables and Figures	On Paragraphs & Captions
NOT RELEASABLE TO FOREIGN NATIONALS	(NOFORN)[b]
WARNING NOTICE - INTELLIGENCE SOURCES OR METHODS INVOLVED	(WNINTEL)[c]
NOT RELEASABLE TO CONTRACTORS/CONSULTANTS	(NO CONTRACT) or (NC)
RELEASE TO	(REL TO)
WARNING NOTICE - SENSITIVE SOURCES AND METHODS INVOLVED	
WARNING NOTICE - INTELLIGENCE SOURCES AND METHODS INVOLVED	
WARNING NOTICE - SENSITIVE INTELLIGENCE SOURCES AND METHODS INVOLVED	
CONTROLLED DISEM	
NSC PARTICIPATING AGENCIES ONLY	
INTEL COMPONENTS ONLY	
LIMITED	
CONTINUED CONTROL	
NO DISSEM ABROAD	
BACKGROUND USE ONLY	
USIB ONLY	
NFIB ONLY	

a. For Guidance concerning these and any other unfamiliar or unlisted markings found on source documents contact DSWA (OPSSI)

b. The control marking Not Releasable to Foreign Nationals (NOFORN) is no longer authorized. Information that was marked NOFORN before 15 June 1996 continues to be non-releasable to foreigners. Information bearing the NOFORN marking that is incorporated into material created after 15 June 1996 must be re-marked US ONLY. Questions must be referred to the originator.

c. When excerpting information from source documents with either WINTEL or NOCONTRACT control marking, any classified markings (TOP SECRET, SECRET, or CONFIDENTIAL) must be carried over to the derivative document but not the control marking.

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5.7 AGENCY, OFFICE OF ORIGIN, AND DATE

Every classified document must show on the first page, title page or front cover (hereafter referred to as the face of the document), the agency and office that originated it, and the date of origination. This information must be clear enough to allow someone receiving the document to contact the preparing office if questions or problems about classification arise.

5.8 SOURCE(S) OF CLASSIFICATION

5.8.1 Originally Classified Documents

Every originally classified document must have a "Classified by" line placed on the face of the document that identifies the original classification authority responsible for classification of the information it contains. The original classification authority shall be identified by name or personal identifier and position title. If the information normally included on the "Classified by" line would reveal classified information not evident from the rest of the document, the "Classified by" line should be completed with an unclassified personal identifier that can be traced through secure channels. Example:

CLASSIFIED BY: ASD(C3I)

or

CLASSIFIED BY: S-3.504 MIB

5.8.2 Derivatively Classified Documents

Derivatively classified documents shall not be marked with a "Classified by" line. Instead, they will be marked "Derived from" and the line completed as follows:

a. If all the information was derivatively classified using a single security classification guide or source document, identify the guide or document on the "Derived from" line. Include the date of the source document or classification guide unless the identification of the classification guide implicitly includes the date. Example:

   DERIVED FROM Rpt titled: XXXX dtd _____

   or

   DERIVED FROM SCG Pgm___ dtd _____

b. If more than one security classification guide, source document, or combination of these provided the derivative classification guidance, place "Multiple Sources" on the "Derived from" line. If "Multiple Sources" is placed on the "Derived from" line, a record of the sources must be maintained on or with the file or record copy of the document. When feasible, this list should be included with all copies of the document. If the document has a bibliography or reference list, this may be used as the list of sources. Annotate it to distinguish the sources of classification from other references.

5.8.3 Combinations of Original and Derivative Classification

If some information was originally classified at the time of preparation of the document and other information was derivatively classified, mark the document with a "Classified by" line and place

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"Multiple Sources" on the line. (The responsible original classification authority shall be identified by position title as one of the "sources" in the list prepared to be maintained with the file or record copy of the document.)

5.9 REASON FOR CLASSIFICATION

Each originally classified document shall bear a concise statement of the reason for classification, determined by the original classifier. This shall be included on a line accompanying the "Classified by" and "Declassify on" lines on the face of the document. A citation of the appropriate category of information listed in Section 1.5 of E.O. 12958 will satisfy this requirement. The categories are repeated here for convenience.

a. Military plans, weapon systems, or operations;

b. Foreign government information;

c. Intelligence activities (including special activities), intelligence sources or methods, or cryptology;

d. Foreign relations or foreign activities of the United States, including confidential sources;

e. Scientific, technological, or economic matters relating to the national security;

f. United States Government programs for safeguarding nuclear materials or facilities; or

g. Vulnerabilities or capabilities of systems, installations, projects or plans relating to the national security.

When cited, they should be preceded by 1.5 as in the examples below:

CLASSIFIED BY: ASD(C3I)
REASON: Foreign Relations

or

CLASSIFIED BY: ASD(C3I)
REASON: 1.5(d)

Note that this marking is NOT required on derivatively classified documents.

5.10 DECLASSIFICATION INSTRUCTIONS

Every classified document (except those containing Restricted DATA and Formerly Restricted Data) must be marked on the face of the document with a "Declassify on" line, with instructions concerning the declassification of the information in the document. The "Declassify on" line shall be completed according to the following rules:

5.10.1 Originally Classified Documents

If all the classified information in the document is classified as an act of original classification, the original classifier must specify the instruction to be place on the line.

For documents which may be declassified on a date or event less than or equal to ten years from the date of original classification, that date or event is placed on the "Declassify on" line. Examples:

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CLASSIFIED BY: ASD(C3I)
REASON: 1.5 (a)
DECLASSIFY ON: 17 MAR 1999

or

CLASSIFIED BY: S-3.504 MIB
REASON: Military Plans
DECLASSIFY ON: Completion of Engineering/Manufacturing/Development (EMD)

If the original classifier has substantial reason to believe that information being originally classified will require protection for longer than ten years, he or she may exempt the information from the ten-year maximum duration of classification. This may be done if:

a. The unauthorized disclosure of the information could reasonably be expected to cause damage to the national security for a period in excess of ten years, and

b. The release of the information could reasonably be expected to:

   i. Reveal an intelligence source, method, or activity, or a cryptologic system or activity;

   ii. Reveal information that would assist in the development or use of weapons of mass destruction;

   iii. Reveal information that would impair the development or use of technology within a United States weapon system;

   iv. Reveal United States military plans, or national security emergency preparedness plans;

   v. Reveal foreign government information;

   vi. Damage relations between the United States and a foreign government, reveal a confidential source, or seriously undermine diplomatic activities that are reasonably expected to be ongoing for a period greater than ten years;

   vii. Impair the ability of responsible United States Government officials to protect the President, the Vice President, and other individuals for whom protection services, in the interest of national security, are authorized;

   viii. Violate a statute, treaty, or international agreement.

If any of the information satisfies condition (a) and fits any of category(ies) in (b) above and therefore has been exempted from the ten-year rule, the "Declassify on" line will be completed with a "X" followed by a number or numbers that show the applicable category(ies). Examples:

CLASSIFIED BY: Dir. PM, DSWA
REASON: 1.5(a)
DECLASSIFY ON: X2

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or

CLASSIFIED BY: DIR., DSWA
REASON: 1.5(a)
DECLASSIFY ON: X2, 4

5.10.2 Derivatively Classified Documents

In derivative classification, different declassification instructions may apply to the various items of information in your document. To ensure that all the information in the document is protected for as long as necessary, the MOST RESTRICTIVE declassification instruction that applies to any of the information in the document shall be placed on the "Declassify on" line. Examples:

a. If all the information in the document has the same declassification instruction assigned, and that instruction is an allowable option under E.O. 12958, place that instruction on the "Declassify on" line. The "allowable options" are a date for declassification, an event for declassification, or an exemption marking. Example:

DERIVED FROM: Multiple Sources
DECLASSIFY ON: 25X3

or

DERIVED FROM: SCG Program ___
DECLASSIFY ON: Source dtd 15 July 1995

b. If all the information in the document has been extracted from a pre-14 October 1995 document marked "OADR,"[1] place the statement "Source marked OADR" on the "Declassify on" line, along with the date of the source document. (Example: You extract classified information from a document dated 3 June 1992 and marked "OADR." You mark your document, "Declassify on: Source marked OADR; Date of source: 3 June 1992.") If there is more than one such source, use the latest date found on any of them. Example:

DERIVED FROM: Cite Source
DECLASSIFY ON: Source marked OADR, dated _____

c. If your document is classified by "Multiple Sources," and different declassification instructions apply to information you include, you must determine the MOST RESTRICTIVE declassification instruction that applies to any of that information and place it on your "Declassify on" line. The following procedure applies:

   i. If declassification dates are specified for ALL of the information in the document, place the latest date (the date farthest in the future) on the "Declassify on" line. (Example: Your information is extracted from documents marked for declassification on 20 March 1998, 1 June 2002 and 3 April 2009. Mark your document "Declassify on 3 April 2009.")

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ii. If the sources of classification indicate a combination of a date or dates with an event or events, indicate that declassification should occur on the latest date or the occurrence of the event(s), whichever is later. (Example: One source specifies "Declassify on 3 August 2001"; the other is marked "Declassify on completion of tests." Mark your derivatively classified document "Declassify on 3 August 2001 or completion of tests, whichever is later.")

iii. If any of the information in the document does not have a definitive date or event for declassification, you will have to determine which marking is most restrictive. The following rules apply:

(a). If you are using information classified under Executive Order 12065 or earlier Orders, any information with an indefinite declassification is treated as though it is marked "OADR." (For example, if you are using information classified under E.O. 10964 that indicates "Group 3," this would be treated as though it is marked "OADR.") When using several sources of information classified under previous Executive Orders that are marked or treated as "OADR," the "Source dated" line will show the source with the most recent date. (For example, with one "OADR" document dated 2 August 1989 and one marked "Group-3" and dated 3 December 1962, the new document would be marked "Declassify on: Source marked OADR; Source dated 2 August 1989.") No matter what combination of indefinite declassification instructions and document dates you use as your derivative guidance, you need only find the document with the most RECENT DATE and this will determine what the "Source dated" line is going to be. Whatever the "Declassify on" line indicates will be your "Source marked" line. (If you have three documents, each marked "OADR," and with the dates of 2 September 1990, 3 December 1992 and 5 October 1995, the most recent date (5 October 1995) is the "Source dated" line. You would mark your document "Declassify on: Source marked OADR, Source dated 5 October 1995.")

(b). Sources marked with E.O. 12958 10-year exemption markings require a different approach. With documents marked "X1" through "X8," complete your "Declassify on" line with the exemption marking found on the sources. (You have two sources you use in making a derivative classification decision. Their declassification instructions are "X1" (14 October 1995) and "X2" (18 October 1995). Your declassification instruction would be "Declassify on: X2.")

(c). Although not required, sources marked with E.O. 12958 25-year exemption markings may have definite declassification dates indicated. If so, use that date when determining the date your information will be declassified. If no date is indicated, mark your document "Declassify on: 25X(enter the number,1 through 9, of the category used on the source document)." For example:

Declassify on: 25X2

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(d). With sources having a combination of these type of declassification instructions, you must analyze the combination to determine which is most restrictive. Generally, the most current source document would provide your declassification on line. For example:

Source	Declassify on:
Source 1	OADR dtd Apr 85
Source 2	17 Mar 99
Source 3	OADR dtd Oct 90

(e). The derived document would be marked as follows:

DERIVED FROM:	MULTIPLE SOURCES
DECLASSIFY ON:	SOURCE MARKED: OADR DTD OCT 90

(f). This information would be subject to declassification 25 years from the date of its origin, thus the date of the source document should always be placed on the declassification instruction line.

(g). If the source information included exemption categories, the same applies. Example:

Source	Declassify on:
Source 1	25X2 (weapons of mass destruction)
Source 2	17 March 99
Source 3	X5 (foreign government information)

(h). The derived document would be marked as follows:

DERIVED FROM:	MULTIPLE SOURCES
DECLASSIFY ON:	X5

(i). The information can be extended in successive ten year increments, therefore, the X5 exemption category becomes the most restrictive declassification guidance.

5.10.3 Combinations of Original and Derivative Classification

If the classification of the document is through a combination of original and derivative classification, determine the declassification instruction by following the rules in subparagraph 5.9c, above. Use the instruction supplied by the original classifier as if it came from a source document or classification guide.

5.10.4 Downgrading Instructions

Downgrading instructions are not required for every classified document, but must be placed on the face of each document to which they apply. Mark the document "Downgrade to Secret on..." and/or "Downgrade to Confidential on..." and add the appropriate date or event. (Note: A downgrading instruction is used in addition to, and not as a substitute for, declassification instruc-

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tions.) Downgrading instructions shall not be applied to documents containing foreign government information or Restricted DATA or Formerly Restricted Data.

5.10.5 Portion Marking (Identification of Specific Classified Information)

Every classified document must show, as clearly as is possible, which information in it is classified and at what level. Specific marking of each portion (“parenthetical portion marking”) shall be used Each section, part, paragraph, and similar portion of a classified document shall be marked to show the highest level of classification of information it contains, or that it is unclassified. When deciding whether a subportion is included in the term “similar portion,” the criterion will be whether the marking is necessary to eliminate doubt about the classification of its contents.

5.10.5.1 Portions of Text

Portions of text shall be marked with the appropriate abbreviation (“TS,” “S”, “C”, or “U”), placed in parentheses immediately before the beginning of the portion. If the portion is numbered or lettered, place the abbreviation in parentheses between the letter or number and the start of the text.

a. Nuclear Weapons Information

Portions containing Restricted Data and Formerly Restricted Data shall have abbreviated markings (“RD” or “FRD”) included with the classification markings, for example, “(S-RD).” Critical Nuclear Weapon Design Information shall be marked with an “N” in separate parentheses following the portion marking: “(S-RD)(N).”

b. Foreign Government Information

Portions of documents containing foreign government or North Atlantic Treaty Organization (NATO) information shall include identification of the foreign classification in the parenthetical marking, for example, “(UK-S)” or “(N-S).” Use the letter “R” to identify NATO or foreign government restricted information. See Table 5-3 "Portion markings for documents containing NATO or foreign government information" for more complete information.

c. For Official Use Only

The abbreviation “FOUO” is used to designate unclassified portions that contain information that may be exempt from mandatory release to the public under the Freedom of Information Act (FOIA). See Appendix B for details.

5.10.5.2 Subjects and Titles of Documents

Subjects and titles of classified documents shall be marked to show their classification. Use the same abbreviations as for other portions, but place them in parentheses after the subject or title. This is the only exception to the placement rule.

5.10.5.3 Graphics

Charts, graphs, photographs, illustrations, figures, drawings, and similar portions of classified documents must be marked to show their classification. Captions or titles of these portions must also be marked.

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a. Charts, graphs, and similar items shall be marked with the unabbreviated classification, or "UNCLASSIFIED," based on the level of classified information they contain or reveal. The marking shall be placed within the chart, graph, etc., or next to the item.

b. Captions and titles of charts, graphs, etc., shall be marked as required for text portions (see paragraph 5.10.5.1). The marking will indicate the classification of the caption or title, not of the chart itself.

Table 5-3. Portion markings for documents containing NATO or foreign government information

Information	Charts, Tables and Figures	Paragraphs, Subparagraphs, and Captions
NATO Unclassified	NATO UNCLASSIFIED	(N-UN)
NATO Confidential	NATO CONFIDENTIAL	(N-C)
NATO Secret	NATO SECRET	(N-S)
NATO Top Secret	NATO COSMIC	(CTS)
NATO Restricted	NATO RESTRICTED	(N-R)
NATO Restricted Data or Formerly Restricted Data	NATO ATOMAL	---
United Kingdom Confidential	UK CONFIDENTIAL	(UK-C)
United Kingdom Secret	UK SECRET	(UK-S)
United Kingdom Top Secret	UK TOP SECRET	(UK-TS)
United Kingdom Restricted	UK RESTRICTED	(UK-R)
Foreign Government Information[a] Confidential	FGI CONFIDENTIAL	(FGI-C)

a. If the identity of the foreign government must be concealed, the cover or first page of the document shall be marked, "This DOCUMENT CONTAINS FOREIGN GOVERNMENT INFORMATION," and applicable portions shall be marked FGI together with the appropriate classification TS, S, OR C (FGI). The identity of the foreign government shall be maintained with the record copy which must be appropriately protected.

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5.10.5.4 Compilations

In unusual circumstances, compilations of information that are individually unclassified may be classified if the compiled information reveals an additional association or relationship that qualifies for classification and is not otherwise revealed by the individual information. Classification by compilation must meet the same criteria in terms of justification as other original classification actions. Documents containing information classified by compilation shall be marked as follows:

a. If portions, standing alone, are unclassified, but the document is classified by compilation, mark the portions "(U)" and the document and pages with the classification of the compilation. You must also add an explanation of the basis for classification which shall be placed on the front cover or included in the document text.

b. If individual portions are classified at one level, but the compilation is a higher classification, mark each portion with its own classification, and mark the document and pages with the classification of the compilation. Cite the explanation for the classification by compilation on the classified by line or with the record copy of the material.

5.11 PAGE MARKING

Each interior page of a classified document (except blank pages) shall be conspicuously marked, top and bottom, with the highest classification of the information on the page. These markings must stand out from the balance of the information and thus a particular size is not specified. Pages containing only unclassified information shall be marked "UNCLASSIFIED." Blank interior pages will not be marked.

5.12 MARKING SPECIAL TYPES OF DOCUMENTS

5.12.1 Documents with Component Parts

If a classified document has components likely to be removed and used or maintained separately, each component shall be marked as a separate document. Examples are annexes or appendices to plans, major parts of a report, or reference charts in a program directive. If the entire major component is unclassified, it may be marked on its face, top and bottom. "UNCLASSIFIED," and a statement added: "All portions of this [annex, appendix, etc.] are Unclassified." No further markings are required on such a component.

5.12.2 Information Transmitted Electronically

Information transmitted electronically, such as messages to be retained as permanent records, rather than those that are facsimile (FAX) transmissions, must be marked as required by this chapter for any other classified document, with the following special provisions:

a. The first item in the text must be the overall classification of the information.

b. For information printed by an automated system, overall and page markings may be applied by that system, provided they stand out conspicuously from the text. In older systems, this may be achieved by surrounding the markings with asterisks or other symbols.

c. A properly completed "Classified by" or "Derived from" line, ("Reason," when appropriate), declassification instructions, and downgrading instructions (when appropriate) must be included in the last line. Declassification and downgrading instructions shall not be

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used for information containing Restricted Data or Formerly Restricted Data. The abbreviations "CLASS" for "Classified by," "RSN" for Reason," DECL" for "Declassify on," "DERV" for "Derived from," and "DNG" for "Downgrade to" may be used.

5.12.2.1 Printed Documents Produced by AIS Equipment

Because of the volume and nature of the printed products of automated information systems (AISs), special provisions for marking some AIS-generated documents are required. These special provisions do not apply to documents produced by AISs that function as word processing systems. Documents produced on these AISs are marked like other documents. The exceptional provisions are:

a. Classification markings on interior pages of fan-folded printouts are required. These markings may be applied by the AIS equipment even though they may not meet the normal test of being conspicuous.

b. Special control notices, identification of classification sources, and downgrading and declassification instructions must either be marked on the face of the document or be placed on a separate sheet of paper attached to the front of the document.

c. Portions of AIS printouts removed for separate use or maintenance shall be marked as individual documents.

5.13 MARKING SPECIAL TYPES OF MATERIALS

When classified information is contained in AIS media, audiovisual media, hardware and equipment, or other media not commonly thought of as documents, the provisions of subsection 5.2 above must be met in a way that is appropriate to the type of material. The main concern is that holders and users of the material are clearly warned of the presence of classified information needing protection. The information provided by other markings required by this chapter must also be made available, either on the item or in documentation that accompanies it. Particular exceptions are as noted in paragraphs 5.14.1 through 5.14.8 below.

5.13.1 Removable AIS Storage Media

Removable storage media include magnetic tape reels, disk packs, diskettes, CD-ROMs, removable hard disks, disk cartridges, optical disks, paper tape, reels, magnetic cards, tape cassettes and micro-cassettes, and any other device on which data is stored and which normally is removable from the system by the user or operator. All such devices bearing classified information must be conspicuously marked with the highest level of classification stored on the device and any special control notices that apply to the information using one of the labels specified in paragraph 5.14.9 below. As an exception, in the case of CD-ROMs, the label may be affixed to the sleeve or container in which the CD-ROM is stored. Other information normally provided by document markings (e.g., "Classified by" and Declassify on" lines) shall be available as follows:

a. If the information is stored in readily accessible format on the device, it does not have to be marked on the outside of the device. As an example, if classified files or documents prepared with a word processor are stored on a floppy diskette, and each file bears its own declassification instructions as entered with the work processor, the diskette does not need to be marked with declassification instructions. This should be true with respect to most diskettes containing classified word processing files and documents, even though a few of them may not have all of the prescribed markings.

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b. If the required information is not stored in readily accessible format on the device, it must be marked on the outside of the device (normally with a sticker or tag) or placed on documentation kept with the device.

5.13.2 Fixed and Internal AIS Storage Media

System managers shall ensure that AISs, including word processing systems, provide for classification designation of data stored in internal memory or maintained on fixed storage media.

5.13.3 Photographs, Negatives, and Unprocessed Film

Photographs and negatives must be marked with the overall classification of information they contain. Photographs should be marked on the face, if possible. If this cannot be done, the classification marking may be placed on the reverse side. Other markings required by this chapter shall be placed on photographs along with the classification marking, or will be included in accompanying documentation.

Roll negatives and positives, and other film containing classified information must be marked with their overall classification. This marking must be placed either on the film itself or on the canister, if one is used. If placed on the film itself, the marking must be placed at the beginning and end of the roll.

5.13.4 Slides and Transparencies

Slides and transparencies shall have the overall classification and special control notices (detailed in subsection 5.5) marked on the image area of the item and also on the border, holder, or frame. Information on the image area of the item shall be portion marked in accordance with paragraph 5.10.5 above. Other required security markings may be placed in the image area; on the border, holder, or frame; or in documentation accompanying the item.

If a group of slides or transparencies is used together and maintained together as a set, each slide or transparency must have the classification marking and special control notices on it. The other required security markings may be placed on the first slide or transparency in the set; these markings are not needed on the other slides or transparencies. Slides or transparencies that are permanently removed from a set must be marked as a separate document.

5.13.5 Blueprints, Schematics, Maps and Charts

Blueprints, engineering drawings, charts, maps, and similar items not contained in a classified document must be marked with their overall classification. The classification marking must be unabbreviated, must be conspicuous, and should be applied top and bottom if possible. The legend or title must also be marked to show its classification. An abbreviated marking in parentheses following the legend or title may be used. If the blueprints, maps and other items are large enough that they are likely to be rolled or folded, classifications markings must be placed to be visible when the item is rolled or folded. For guidance on marking these items when they are pages of a classified document, see 5.12.1 Documents with Component Parts, above.

5.13.6 Motion Picture Films and Videotapes

Classified motion picture films, videotapes, and time-dependent computer generated graphics must be marked with their classification and any appropriate control notices at the beginning and end of the played or protected portion. Other required security markings shall be placed at the beginning of the projected or played portion. Reels and cassettes shall be marked with the

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overall classification of the item and kept in containers marked with the classification and other required security markings.

5.13.7 Sound Recordings

Sound recordings containing classified information must have an audible statement of their classification at the beginning and end. Reels or cassettes shall be marked with the overall classification of the item and kept in containers marked with the classification and other required security markings.

5.13.8 Microfilms

Microfilm, microfiche, and similar media must have their overall classification marked in the image area that can be read or copied. They also must have this marking applied so it is visible to the unaided eye. Other required security markings shall be either placed on the item or included in accompanying documentation.

5.13.9 Standard Form (SF) Labels

If not marked otherwise, AIS storage media and other items covered by this Section must be marked with the following labels:

- SF 706 - TOP SECRET
- SF 707 - SECRET
- SF 708 - CONFIDENTIAL
- SF 709 - CLASSIFIED
- SF 710 - UNCLASSIFIED
- SF 711 - DATA DESCRIPTOR

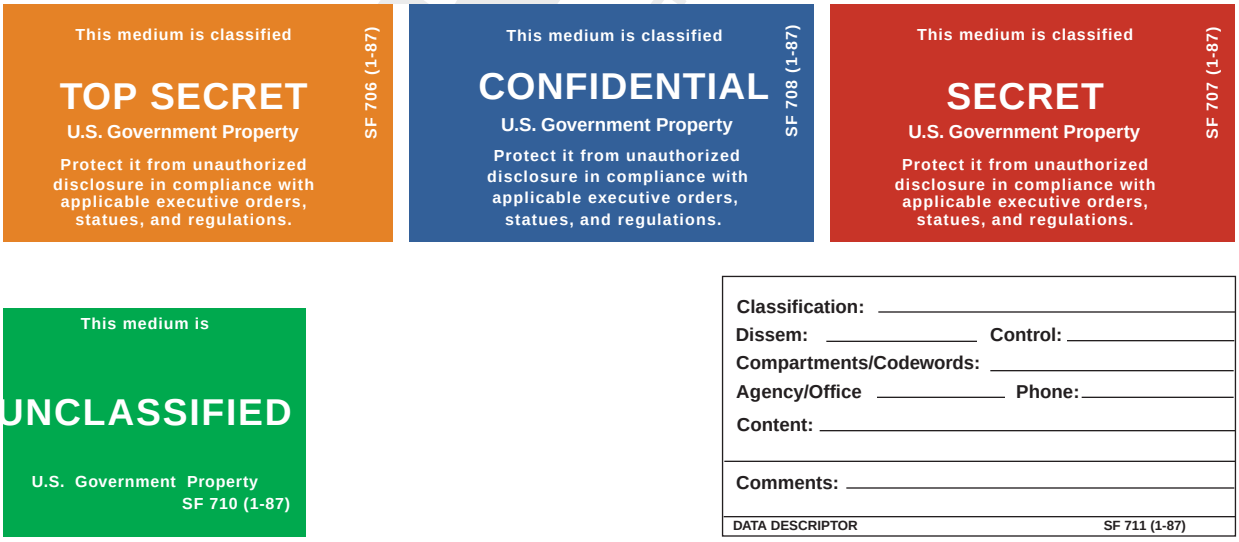

Figure 5-1: Standard form labels

SF 711 should be used any time classified AIS storage media are removed from the office in which they were created. There is no intention to require use of SF 710 in environments where no classified information is created or used. SF 709 should not be used if the appropriate classification label (SF 708, SF 707, SF 706) is available.

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5.14 MARKING OF FOREIGN GOVERNMENT AND NATO INFORMATION IN DOD DOCUMENTS

When used in DoD documents, foreign government information (FGI) must be marked to prevent premature declassification or unauthorized disclosure. To satisfy this requirement, U.S. documents that contain foreign government information shall be marked on the cover or first page, "THIS DOCUMENT CONTAINS (indicate country of origin) INFORMATION." In addition, the portions shall be marked to identify the classification level and the country of origin, e.g., (UK-C); (GE-C). If the identity of the foreign government must be concealed, the cover or first page of the document shall be marked, "THIS DOCUMENT CONTAINS FOREIGN GOVERNMENT INFORMATION," and applicable paragraphs shall be marked FGI together with the appropriate classification (FGI-S). The identity of the foreign government shall be maintained with the record copy which must be appropriately protected.

The "Derived from" line shall identify the U.S. as well as foreign classification sources. If the identity of the foreign government must be concealed, the "Declassify on" line shall contain the notation, "Originating Agency Determination Required," or "OADR," and the identity of the foreign government maintained with the record copy and protected as above. A U.S. document marked as described herein, shall not be downgraded below the highest level of foreign government information contained in the document or be declassified without the written approval of the foreign government that originated the information. Recommendations concerning downgrading or declassification shall be submitted through the DoD entity that created the document to the originating foreign government.

DoD classified documents that contain extracts of NATO classified information shall be marked as follows on the cover or first page: "THIS DOCUMENT CONTAINS NATO CLASSIFIED INFORMATION." Portions shall be marked to identify the NATO information (e.g., N-S). All other markings prescribed in "Marking Classified Documents and Other Material" on page 38, are applicable to these documents. See (Table 5-3 "Portion markings for documents containing NATO or foreign government information") for examples.)

When NATO or other foreign government RESTRICTED information is included in otherwise unclassified DoD documents, the following statement shall be affixed to the top and bottom of the page containing the information: "This page contains (indicate NATO or country of origin) RESTRICTED information." The Restricted portions shall be portion marked (e.g., (NR); (UK-R), (NR)." The cover, (or first page, if no cover) of the document shall contain the following statement: "This document contains NATO Restricted information not marked for declassification (date of source) and shall be safeguarded in accordance with USSAN 1-69.

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Section 6: List of References

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Appendix A Glossary

Ancillary File—A file that is subordinate to the main file but supports its functions.

Author (Software)—The person or body responsible for the creation of the intellectual content of the software. It includes a person identified as the *creator*, *designer*, *producer*, *program developer*, or *programmer* but not **publisher** or **distributor**. In the **version statement**, the term **author** refers to the person or body responsible for the changes made from the previous version and who is different from the author of the previous version.

ASCII File—An ASCII file is one that contains only "text" characters —numbers, letters, and standard punctuation. As such, they cannot have any formatting, such a bold or italics. ASCII files normally use ".txt" or no extension.

BinHex—BinHex is a Macintosh utility for encoding binary files as text files, usually for network transmission or E-mail attachments. BinHex files have a "*.hqx"* extension. The BinHex utility can also convert .hqx files back to their original form.

Computer File—A computer file is a single named digital entity that resides on magnetic or optical computer storage media. A computer file consists of a logical collection and ordering of data for use by a computer, and can be used to store text, graphics, data or computer software. Multiple files can be combined into a single file by a compression process.

Contracting Officer's Technical Representative (COTR)—Contracting Officer's Technical Representative and Project Manager (PM) are used interchangeably herein as they are in practice at DSWA—This is the person responsible for monitoring the technical performance of the contractor and responsible for fulfilling certain functions as the representative of the Contracting Officer.

DARE—DARE is the name of the system developed under Data Archival and Retrieval Enhancement (DARE) program. It is a data management system designed to preserve and utilize data generated from DSWA's research and development programs. Originally designed for nuclear weapons effects related test data, it has been expanded to cover all DSWA scientific and technical data.

Document—Information that is considered an entity for access by a user although its electronic version may consist of several computer files. A document which will be published consists of all of the information that is considered an entity when printed in hard copy form. For example, a book is a single document whether its electronic components consist of one computer file or several computer files corresponding to major sections of the book. A document which will not be published may be multimedia and consists of all of the information that is considered part of the document but not necessarily printable. For example, a multimedia document may include videos and application software which cannot be printed but are still part of the document.

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External label—Any paper, plastic, etc., label that is affixed permanently to the physical carrier, or any information that is embossed on the physical carrier, as opposed to an internal label that can only be seen when the software is used with the computer, and as opposed to any information that is printed or embossed on the physical packaging. The external label also includes any paper, plastic, etc., envelope or other protective covering in which the physical carrier is enclosed temporarily.

Interim delivery—delivery of a STI product before the final delivery of products called for in the contract. These are normally provided by the contractor to the COTR as part of the process of monitoring the contract. A copy of a briefing for a program review meeting is an interim product unless specifically called for as a final deliverable by the contract.

Java—Java is an object oriented programming language which can be compiled into either stand-alone applications or web browser-based applets. Applets require a Java virtual machine, usually included with a web browser, to execute. Java's goal is to provide "write once, run anywhere" capability across platforms. It is an evolving language which is currently being standardized by the International Standards Organization (ISO). Further information is available from Javasoft at URL: http://www.javasoft.com.

Javascript—Javascript is an interpreted, web browser-based programming language which is embedded in HTML documents. It is typically used to provide a limited degree of client functionality for error checking and interactive operation.

Licensing Agreement—an agreement between the user and the publisher concerning the use of the software. A licensing agreement covers aspects such as limits on use and reproduction, technical support, availability of upgrades, etc.

Metadata—Information describing the characteristics of data; data or information about data; descriptive information about an organization's data, data activities, systems and holdings.

Native File Format—The format that a computer file was originally created in. It is usually application and version specific.

Photographs, documentary—photographs designed to document an experiment's configuration or setup and progress of an experiment. No measurements are expected to be taken from this type of image.

Photographs, technical—photographs taken to record or measure technical information. The image itself is used for analysis, either by measurement of distances between points or by multispectral analysis of the image.

Photographs, scientific—photographs where much of the information is in the film grain itself of the negative and while a digital version would provide some information to a user, the original film must be retained for analysis

Photographs, web—photographs intended to be placed as illustrations on a web page for online viewing

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Physical carrier—The physical manifestation of the software, i.e., the medium on or in which its contents are stored or transported (e.g., disk or CD-ROM), together with the permanent housing of that medium (e.g., the plastic jacket in which a microcomputer disk is enclosed permanently).

Pica—a. A printer's unit of type size, equal to 12 points or about 1/6 of an inch. b. An equivalent unit of composition measurement used in determining the dimensions of lines, illustrations, or printed matter.

Portable Document Format (PDF)—A proprietary format of Adobe Systems Incorporated that is one of the formats used within the DARE system for the storage and display of documents. PDF files can be read with freely available Adobe Acrobat® software. When printed, they appear the same as the published original. More information on PDF, can be obtained at URL http://ww.adobe.com.

Postscript File—The file produced as a result of printing to a file rather than to a printer. Downloading a postscript file to a postscript printer will produce a printed document that corresponds to the same document as that produced when printing directly to the printer.

Program—A set of steps or routines instructing a computer to perform certain tasks.

Published Document—(See "Document" above.) A published document (as used in this standard) is one that has been replicated and distributed. The replication and distribution process can be printing and distributing a hardcopy version, replicating the digital media containing the document in digital form, or distributing the document in digital form as a unit by electronic means, such as a electronic newsletter.

Publisher (Software)—The body responsible for the development, reproduction and distribution of software. DSWA is the publisher for software developed under its sponsorship.

README File—ASCII files which provide information that a user needs to access accompanying data files or to install or use an application. README is always part of their filename.

Software Package—The software, any related data files, the documentation, and any other accompanying material, all of which are available as a unit for distribution to users, although any of the components may also be available separately.

Software Delivery Package—The software package intended for reproduction and distribution to users and all additional documentation (such as programmer and V&V documentation), annotated code, and data files.

Software—A collective term for one or more computer programs.

StuffIt—Stuffit is a Macintosh utility from Aladdin Systems Inc. that packs many files into a single, compressed file. The compressed file is given a "*.sit*" extension. The files can be read or extracted with StuffIt Expander.

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System Requirements—Information about the hardware and software required to run a software item.

Tar—Tar is a Unix utility that packs many files into a single archive file. The archive file is usually given a "*.tar*" extension and referred to as a "*tarfile*." Tar can also read or extract files from a tarfile. Standard tar does not compress files, so it is often used in conjunction with a compression utility.

Table—In discussions concerning documents, table means: an arrangement of words, numbers, or signs, or combinations of them, as in parallel columns, to exhibit a set of facts or relations in a definite, compact and comprehensive form; a synopsis or scheme which is part of the document. When used as a data type, such as in Section 3.5, table is defined to mean a set of numeric or textual, or both, information, organized in a spreadsheet or database.

Text File—Synonymous with ASCII file.

Title Screen—A title page analogy; a display of data from a computer file that identifies the software and might include, in addition to the title, such other information as the title statement, the author, the publisher statement, etc. The title screen is generally, but not always, displayed when the software is loaded or started.

Uniform Resource Locator—A Uniform Resource Locator is a method of uniquely specifying the location of a resource on the Internet. The most common URL types are shown below

Table A-1 Common URL types

Name	Internet Protocol	Sample Client
ftp	File Transfer Protocol	Anarchie
gopher	Gopher protocol	
http	HyperText Transfer Protocol	Netscape Communicator
wais	Wide Area Information Servers	WAIS

Zip—Zip is a utility that packs many files into a single, compressed file. The compressed file is given a .zip extension and referred to as a "zipfile." Zip is available on many platforms, including Unix, MSDOS (where it is called PKZIP), Windows (where it is called winzip), and Macintosh. A separate program, unzip, is used to read or extract files from a zipfile.

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Appendix B List of Abbreviations, Acronyms and Symbols

1. ABBREVIATIONS

2. ACRONYMS

ASCII	American Standard Code for Information Interchange
CD-ROM	Compact Disk Read Only Memory
CRLF	Carriage Return and a Line Feed
DPI	Dots Per Inch, a measure of the resolution of electronic images. The higher the number, the more fidelity the electronic image has to the original document appearance
GIF	Graphic Image Format
GPS	Global Positioning System
JPEG or JPG	Joint Photographic Experts Group, a set of 29 digital image coding processes developed by computer graphics organizations for achieving both high compression and high fidelity of images. It is an encoding format, not an actual file format.
HTML	Hypertext Markup Language
LSB	Least Significant Byte first
LZW	Lempel-Ziv and Welch (name of a compression scheme)
MB	Megabytes (Usually used in reference to the amount of data stored in a computers dynamic or storage memory.)
OCR	Optical Character Recognition. A process for reading scanned document images and producing corresponding ASCII text
PC	Personal Computer
PDF	Portable Document Format
PS	Postscript
TIFF	Tagged Image File Format, a digital image standard.
URL	Uniform Resource Locator

3. SYMBOLS

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Appendix D Completion Instructions

Note: *This appendix will provide an example Completion Instructions. This will be a modification of the Publication Instructions currently used for DSWA Technical Reports.*

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Appendix E Example Pages

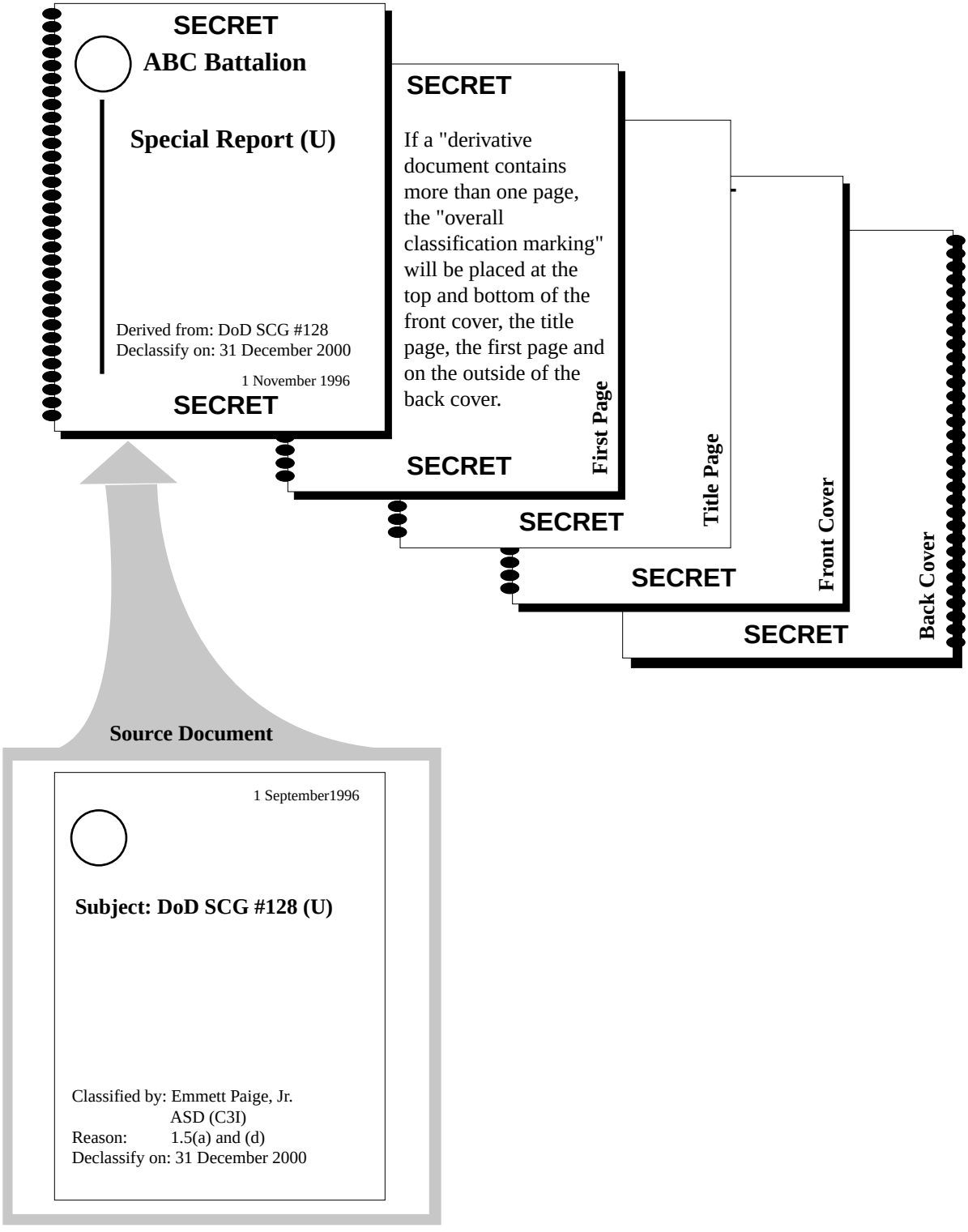

Figure E-1: Portion markings and overall classification marking of a derivative document

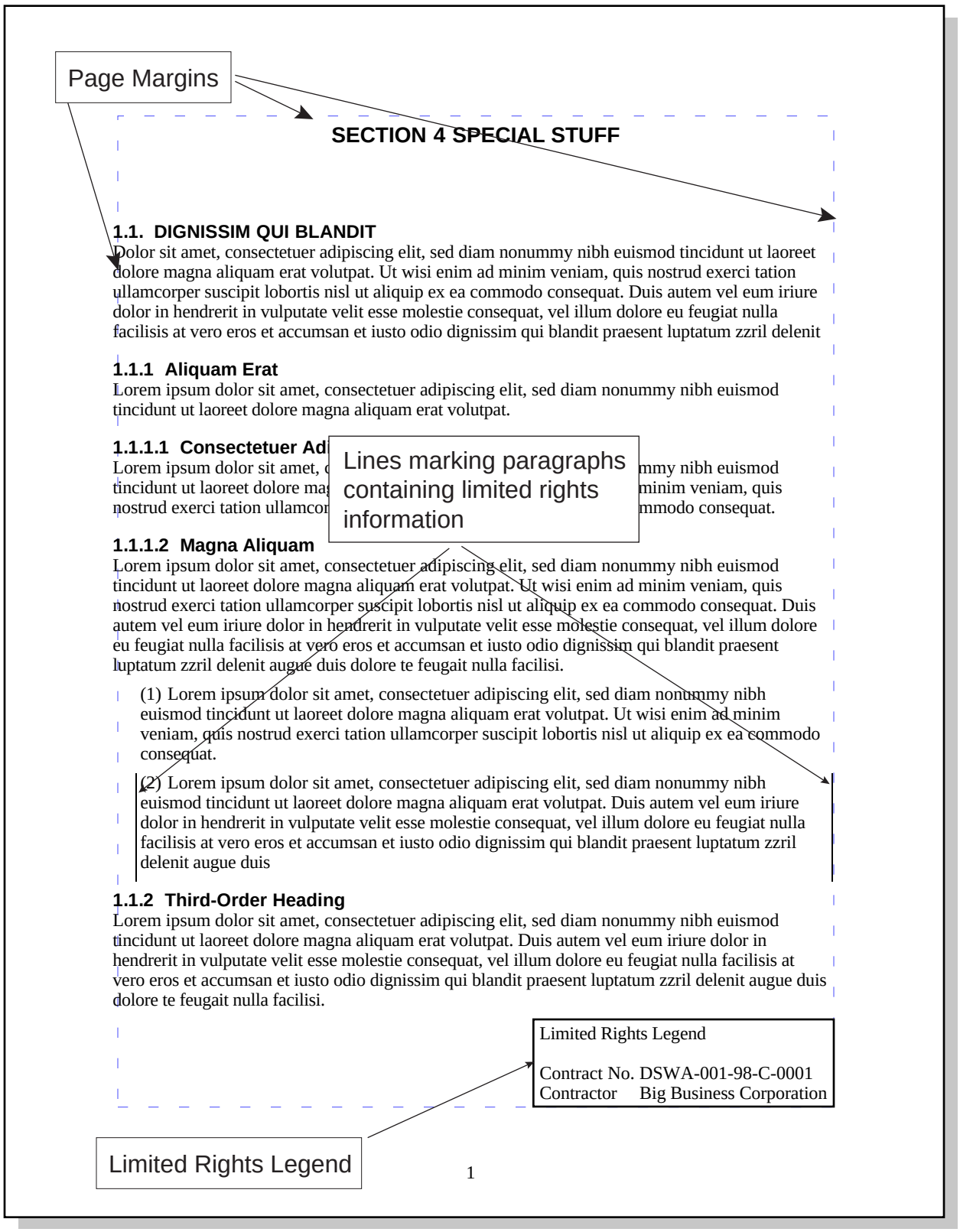

Figure E-2: Example interior page containing limited-rights legend

SECTION 4
FIRST ORDER HEADING

4.1. SECOND-ORDER HEADING

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Figure E-3: Example page showing format for single column unclassified report

SECTION 4
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4.1. SECOND-ORDER HEADING

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Figure E-4: Example page showing format for two column unclassified report

UNCLASSIFIED

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UNCLASSIFIED

Figure E-5: Example page for unclassified section in a classified report

SECRET RESTRICTED DATA

SECTION 3
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3.1.1.2 (U) Fourth-Order Heading

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a. (U) Fifth-Order Heading

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b. (C) Fifth-Order Heading

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3.1.2 (U) Third-Order Heading

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3.1.3 (U) Third-Order Heading

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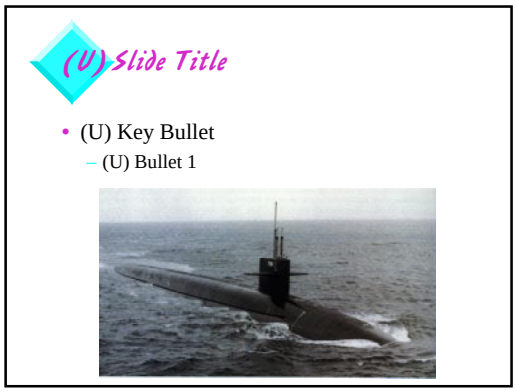
SECRET RESTRICTED DATA

Figure E-6: Example page for a classified section in a classified report

Classification



Classification

Chart 1-1. (U) Sample Chart

- (U) Some formal briefings are later used to create a document. In such instances, the preferred format is vertical, such as this example. To do this, the preparer uses software to create small views of viewgraphs and/or charts and places them on the same page with the narrative text. This figures illustrates the correct way to prepare reports that are comprised of briefing charts in this manner.
- (U) Instead of labeling figures, the charts are numbered Chart 1-1, 1-2, etc. A Table of Contents and or a list of Charts must be included in the front matter. A DTIC worksheet is mandatory.
- (U) All charts should be of the same size and placed at the top of the page. The width and top line of the narrative text should be same on all pages.

1

Classification

Figure E-7: Example page for vertical format for annotated briefing

Classification

(U) Slide Title

- (U) Key Bullet
  - (U) Bullet 1

Chart 3-2. A very important chart with a nice graphic.

14

Classification

Classification

This is an alternate approach to creating a document from a formal briefing. This approach permits the use of full size graphics but it has several drawbacks and should be avoided. Some of the drawbacks are peculiar to the on-line version, such as the fact that the text cannot be viewed simultaneously with the chart.

In this approach, the text associated with the charts must be placed so that in the published version, the chart will be on the left handed (even numbered) page, with the associated text in a horizontal format on the following right handed page. A person viewing the document should be able to turn the published document counter clockwise, and see the chart above while reading the associated text below.

The requirements concerning labeling and the Table of Contents are the same as for the preferred approach.

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Classification

Figure E-8: Example pages using horizontal format for annotated briefing

Calculated and Measured Velocities, 21-in Wall

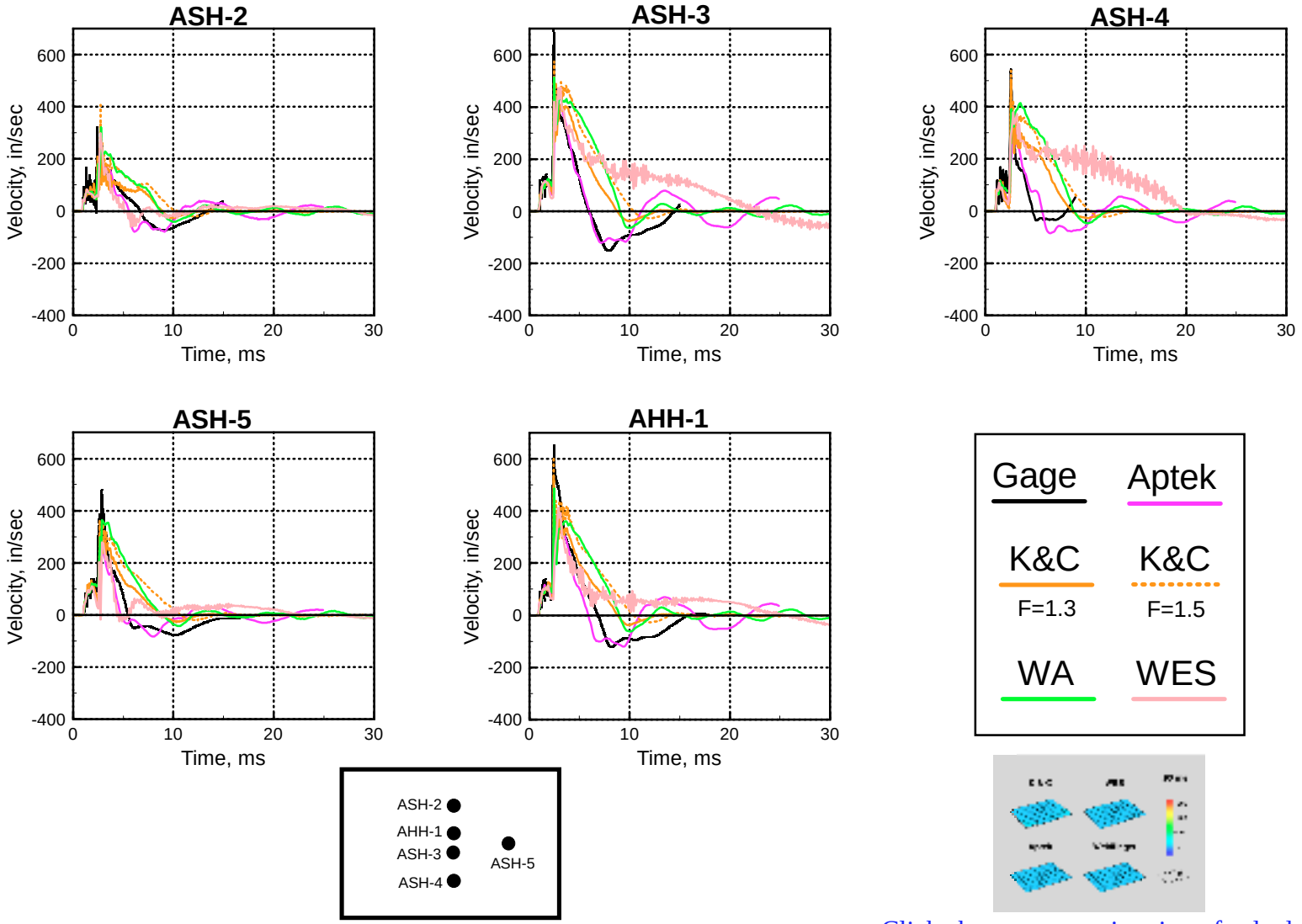

Figure E-9: Example page: Slide with link to animation

Click above to see animation of calculations

Note: *This page is reserved for an example page showing a contents.txt file.*

Figure E-10: Example page: Contents.txt file

Appendix F Bibliographic Styles

This is a set of examples of author-date in-text citations and bibliographic entries for typical references that will be used by preparers of DSWA technical reports. This example follows the styles of the *Publication Manual of the American Psychological Association (APA)* (American Psychological Association, 1994). Other style guides exist and may be used for DSWA technical reports. The APA manual is used used because it was arbitrarilyselected for the citations used within this standard. It is provided as a quick reference for DSWA report preparers. No attempt has been made to make it exhaustive and it should not be considered to obviate the need to consult the *Publication Manual of the American Psychological Association* or the appropriate style guide for the style chosen by the preparer. For citing references to electronic sources, please consult *Electronic Styles, A Handbook for Citing Electronic Information* (Li & Crane, 1996). Please note that when a title is used within the text, it is formatted differently from the format used in the bibliography. (See above.)

IN-TEXT CITATION EXAMPLES

Audiovisual Material	(Audiovisual Material Author, Year)
Book	(Book Author, Year-a)
Book Section	(Book Section Author, Year)
Computer Program	(Computer Program Programmer, Year)
Conference Proceeding	(Conference Proceedings Author, Year of Conference)
DoD Publication	(Issuing Agency or Office[1], Year)
Edited Book	(Edited Book Editor, Year)
Electronic Sources (URL)	(URL Source Author, Year)
Generic	(Generic Author, Year)
Government Document	(Issuing Agency or Office[1], Year)
Journal Article	(Journal Article Author, Year)
Magazine Article	(Magazine Article Author, Year)
Map	(Map Cartographer, Year)
Patent	(Patent Author, Year)
Personal Communication	(Personal Communications Author, Year)
Report	(Report Author, Year)
Thesis	(Thesis Author, Year)
Book with two authors	(Last Author1 & Last Author2, Year)

1. For DoD and government publications, treat the issuing office as a group author.

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For a reference to something by the same author in the same year. (Book Author, Year-b)

LIST OF REFERENCES FOR THE ABOVE CITATIONS.

Please note that using the APA style, references are listed alphabetically by author. When an author's material appears twice, it is further sorted by date. If there is more than one source by the same author in the same year, the different sources are distinguished by appending a lower-case letter to the date, e.g. Brown, A.G. (1994a); would be followed by Brown, A.G. (1994b).

Audiovisual Material Author. (Year). Title of Audiovisual Material [Type]. City: Publisher. (Classification)

Book Author. (Year-a). Title of Book1 (Translator, Trans.). (Edition ed.). (Vol. Volume). City: Publisher. (Classification)

Book Author. (Year-b). Title of Book2 (Translator, Trans.). (Edition ed.). (Vol. Volume). City: Publisher. (Classification)

Book Section Author. (Year). Book Section Title. In Editor (Ed.), Book Title, (Edition ed., Vol. Volume, pp. Number of Pages). City: Publisher. (Classification)

Computer Program Programmer. (Year). Title of Computer Program (Version Version) [Type]. City: Publisher. (Classification)

Conference Proceedings Author. (Year of Conference, Date). Title of Conference Proceedings. Paper presented at the Conference, Conference Location. (Classification)

Edited Book Editor (Ed.). (Year). Title of Edited Book (Edition ed.). (Vol. Volume). City: Publisher. (Classification)

Generic Author. (Year). Title of Generic Reference Type. In Secondary Author (Ed.), Secondary Title, (Edition ed., Vol. Volume, pp. Pages). Place Published: Publisher.

Issuing Agency or Office. (Year) Title of DoD Publication. Document Number, Date. (Classification)

Issuing Agency or Office. (Year) Title of Government Publication. Document Number, Date. (Classification)

Journal Article Author. (Year). Title of Journal Article. Journal, Volume(Issue), Pages. (Classification)

Last Author1, F., & Last Author2, F. (Year). Title of Book (Translator, Trans.). (Edition ed.). (Vol. Volume). City: Publisher. (Classification)

Magazine Article Author. (Year, Date). Title of Magazine Article. Magazine, Volume, Pages. (Classification)

Map Cartographer. (Year). Title of Map, (Edition ed.,). City: Publisher. (Classification)

Patent Author. (Year). Title of Patent, Published Source, (Vol. Volume, pp. Pages). Country: Assignee. (Classification)

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Personal Communications Author. (Year). 'Subject of Personal Communication:' Subject of Personal Communication. Type of Communication. Date. (Classification)

Report Author. (Year). Title of Report (Type Report Number). City: Institution. (Classification)

Thesis Author. (Year). Title of Thesis. Unpublished Thesis Type, University, City. (Classification)

URL Source Author. (Year), Title of URL Document (edition), [Type of Medium]. Available: URL [Access Date] (Classification)

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Appendix G Software Data Elements

Table G-1 Software data elements†

Data Element	Packaging	Physical Carrier	Title Screen	Accompanying Material	Software Reference File
Author	OPT	CON	CON	OPT	OPT
Title Statement	MAN	MAN	MAN	MAN	MAN
Title Proper	MAN	MAN	MAN	MAN	MAN
Alternative Title	OPT	OPT	CON	OPT	OPT
Parallel Title	OPT	OPT	CON	OPT	OPT
Version Statement	MAN	MAN	MAN	CON	MAN
Version	MAN	MAN	MAN	MAN	MAN
Author	OPT	OPT	OPT	OPT	OPT
Identification Of Version Changes	OPT	OPT	OPT	MAN	MAN
Other Versions Available	OPT	OPT	OPT	MAN	MAN
Publisher Statement	MAN	MAN	MAN	MAN	MAN
Publisher	MAN	MAN	MAN	MAN	MAN
Mailing Address	MAN	MAN	OPT	MAN	MAN
Email Address	OPT	OPT	OPT	MAN	MAN
Telephone Number	OPT	OPT	OPT	MAN	MAN
Contact person	OPT	OPT	OPT	OPT	MAN
Developer Statement	OPT	OPT	MAN	MAN	MAN
Developer	OPT	OPT	MAN	MAN	MAN
Mailing Address	OPT	OPT	OPT	OPT	MAN
Contract Number	OPT	OPT	MAN	MAN	MAN
Availability Statement	MAN	MAN	MAN	MAN	MAN
Classification	OPY	OPT	OPT	OPT	OPT
Caveats	OPT	OPT	OPT	OPT	OPT
Release Authority	OPT	OPT	OPT	OPT	OPT
Distribution Statement	MAN	MAN	MAN	MAN	MAN
Environment Statement	MAN	OPT	OPT	MAN	MAN
Language	MAN	MAN	MAN	MAN	MAN
Complier	NA	NA	NA	NA	MAN
Library	NA	MAN	NA	NA	MAN
Operating System	MAN	MAN	MAN	MAN	MAN
Minimum Memory Size	OPT	OPT	OPT	MAN	MAN
Minimum Storage Size	OPT	OPT	OPT	MAN	MAN
Minimum Display Type	OPT	OPT	OPT	MAN	MAN
Other Requirements	OPT	OPT	OPT	MAN	MAN
Software Description	NA	NA	NA	MAN	MAN
Date	OPT	OPT	OPT	OPT	MAN
Licensing provisions	NA	NA	NA	MAN	MAN
Limits on use	NA	NA	NA	MAN	MAN
Limits on reproduction	NA	NA	NA	MAN	MAN

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Table G-1 Software data elements†

Data Element	Packaging	Physical Carrier	Title Screen	Accompanying Material	Software Reference File
Classification	CON	CON	CON	CON	CON
Overall classification	CON	CON	CON	CON	CON
Warnings and Notices	CON	CON	CON	CON	CON
Evaluation/Certification	NA	NA	NA	CON	CON
Verification	NA	NA	NA	CON	CON
Validation	NA	NA	NA	CON	CON
Authentication	NA	NA	NA	CON	CON
Items supplied	MAN	OPT	OPT	OPT	MAN
Software and physical carrier	MAN	OPY	OPT	OPT	MAN
Documentation	MAN	OPT	OPT	OPT	MAN
Accompanying material	CON	OPT	OPT	OPT	MAN
Identification of physical carrier	NA	CON	NA	NA	NA
User Support	OPT	OPT	OPT	OPT	OPT
Mailing address	OPT	OPT	OPT	OPT	OPT
Place	OPT	OPT	OPT	OPT	OPT
Email address	OPT	OPT	OPT	OPT	OPT
Telephone number	OPT	OPT	OPT	OPT	OPT
Contact person	OPT	OPT	OPT	OPT	OPT
Hours of availability	NA	NA	NA	OPT	OPT

NOTE:
† MAN = Mandatory, CON = Conditional, OPT = Optional, NA = Not Available

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Appendix H Index

Note: *This is a place holder for an index. A hypertext linked index will be inserted here in the next version of this standard.*

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